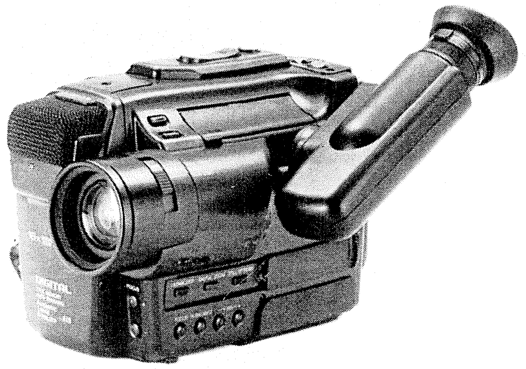
S-VHS-C Camcorder

VKR9015/21

Service
Service
Service



Service Manual

S VHS C VHS PAL 625

Hi-Fi HQ

VKR9015/21 Consists of:

-VKR9015/01	Camcorder
-SBC5420/00	AC Adaptor/Charger
-SBC5217	Rechargeable battery
-SBC5421/00	Carrying strap
-SBC5510/00	AV Eurocable (stereo)
-SBC5500/00	S-Video cable
-CR2032	Back up battery
-22AV5146	Cassette adaptor

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4822 726 1

CS 3

SPECIFICATIONS

Power source	: DC 6.0 V
Power consumption	: 6.9 W (Battery operation, recording mode)
Video recording system	: Rotary four heads, helical scanning system
Tape speed	
SP	: 23.39 mm/sec
LP	: 11.7 mm/sec
Tape format	: S-VHS-C/VHS-C
Recording/playback time	
SP	: 45 min. With EC45 cassette tape
LP	: 90 min. With EC45 cassette tape

VIDEO

Television system	: CCIR 625 lines, 50 fields PAL colour signal
Modulation system	
Luminance	: FM azimuth recording
Colour signal	: Converted subcarrier phase shift recording
Output level	
Video out (RCA socket)	: 1.0 Vp-p/75 ohms unbalanced
S-VIDEO out	: 1.0 Vp-p/75 ohms unbalanced
Video horizontal resolution colour	
S-VHS	: More than 400 lines (S-video out)
VHS	: More than 250 lines
Signal to noise ratio	: More than 43 dB (SP)

AUDIO

MIC Input level	: -70 dB/4.7 kohms or more unbalanced
Output level	: -8 dB/600 ohms unbalanced
Audio track	
Hi-Fi	: 2 channels (stereo)
Normal	: 1 track (Mono)
Frequency response	
Hi-Fi (SP)	: 50 to 20,000 Hz
Normal (SP)	: 80 to 8,000 Hz
Signal to noise ratio	
Hi-Fi (SP)	: More than 47 dB
Normal (SP)	: More than 43 dB

Image sensor	: 1/3-inch CCD image sensor
Lens	: 8 : 1 Power zoom lens with digital AI auto focus Focal length 6-48mm F1.4 Auto iris Filter diameter 37 mm
Viewfinder	: 2/3-inch electronic viewfinder
Standard illumination	: 1,400 lux
Minimum required illumination	: 3 lux (Low light mode)
1 lux (Gain up mode)	
Operating temperature	: 0° to 40° C
Operating humidity	: 20 to 80 %
Weight	: 780 g (Without battery pack)
Dimensions	: 156 (W) x 118 (H) x 204 (D) mm

- Weight and dimensions shown are approximate.
- Specifications are subject to change without notice.

CONTENTS

TECHNICAL INFORMATION

SECTION 2 ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES 2-1
2-2. DISASSEMBLY PROCEDURES OF MECHANISM 2-4
2-3. ASSEMBLY AND PHASE ADJUSTMENT PROCEDURES OF MECHANISM 2-7
2-4. INTERCHANGEABILITY ADJUSTMENT 2-12
2-5. ELECTRICAL ADJUSTMENT PROCEDURES 2-20
LOCATION OF TEST POINTS & CONTROLS (1) 2-44
LOCATION OF TEST POINTS & CONTROLS (2) 2-45

SECTION 3 BLOCK DIAGRAM & SCHEMATIC DIAGRAMS

3-1. PROCESS BLOCK DIAGRAM 3-1
3-2. AUTO FOCUS BLOCK DIAGRAM 3-5
3-3. SENSOR BLOCK DIAGRAM 3-9
3-4. CCD DRIVE BLOCK DIAGRAM 3-11
3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM 3-13
3-6. LUMINANCE & CHROMINANCE BLOCK DIAGRAM 3-16
3-7. EVF BLOCK DIAGRAM 3-19
3-8. SUB OPERATION SCHEMATIC DIAGRAM 3-20
3-9. POWER SCHEMATIC DIAGRAM 3-22
3-10. POWER & SUB OPERATION C.B.A. 3-25
3-11. PROCESS SCHEMATIC DIAGRAM 3-29
3-12. SENSOR SCHEMATIC DIAGRAM 3-36
3-13. AUTO FOCUS SCHEMATIC DIAGRAM 3-39
3-14. EVF SCHEMATIC DIAGRAM 3-42
3-15. EVF C.B.A. 3-44
3-16. CAMERA (PROCESS, SENSOR & AUTO FOCUS Section) C.B.A. 3-46
3-17. MAIN (SUB SYSTEM CONTROL, SYSTEM CONTROL & SERVO, LUMINANCE & CHROMINANCE, VITC, AUDIO AND Hi-Fi AUDIO Section) C.B.A. 3-49
3-18. VTR OPERATION RELAY C.B.A. 3-53
3-19. SUB SYSTEM CONTROL SCHEMATIC DIAGRAM 3-55
3-20. AUDIO SCHEMATIC DIAGRAM 3-58
3-21. Hi-Fi AUDIO SCHEMATIC DIAGRAM 3-61
3-22. VITC SCHEMATIC DIAGRAM 3-63
3-23. SYSTEM CONTROL & SERVO SCHEMATIC DIAGRAM 3-67
3-24. LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM 3-71
3-25. DRIVE SCHEMATIC DIAGRAM 3-78
3-26. DRIVE C.B.A. 3-81
3-27. MIC SCHEMATIC DIAGRAM 3-83
3-28. MIC C.B.A. 3-85
3-29. CIRCUIT BOARD LAYOUT 3-87
3-30. INTERCONNECTION SCHEMATIC DIAGRAM 3-89

SECTION 4 EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS 4-1
  ❶ VTR MECHANISM SECTION (1) 4-1
  ❷ VTR MECHANISM SECTION (2) 4-2
  ❸ VTR MECHANISM SECTION (3) 4-3
  ❹ CAMERA LENS SECTION 4-4
  ❺ FRAME & CASING PARTS SECTION (1) 4-5
  ❻ FRAME & CASING PARTS SECTION (2) 4-6
  ❼ PACKING PARTS & ACCESSORIES SECTION 4-7
4-2. MECHANICAL REPLACEMENT PARTS LIST 4-8
4-3. ELECTRICAL REPLACEMENT PARTS LIST 4-10

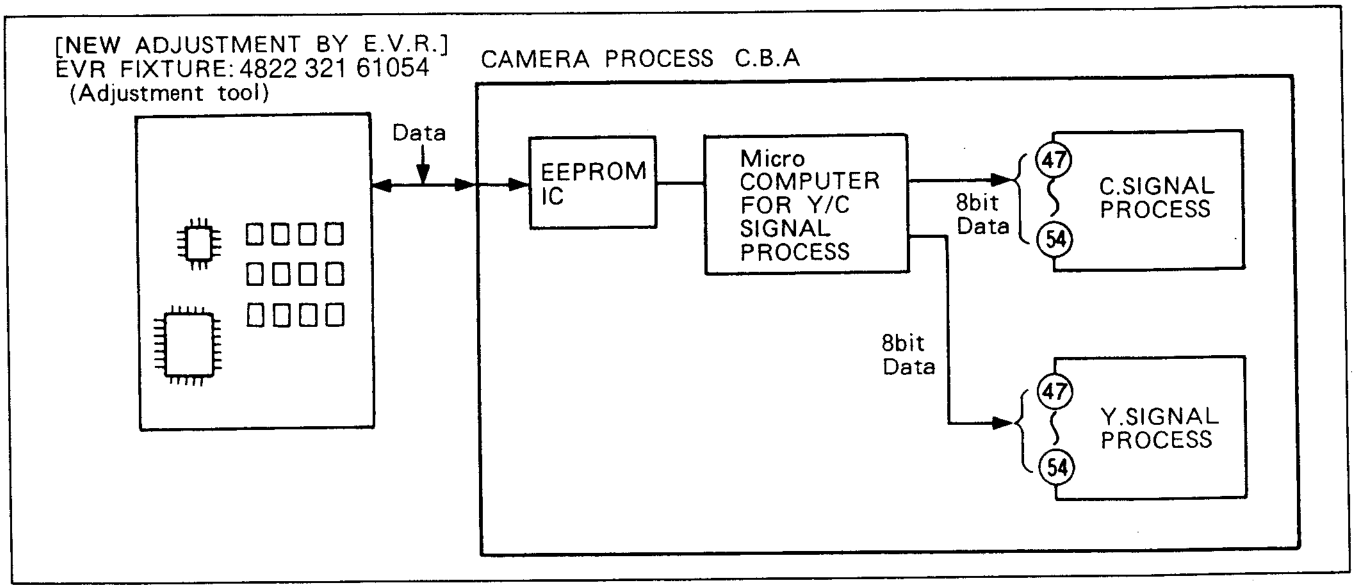
Technical Information

Service caution

1–1. Adjustment of the Camera Section.

In the camera section the EEPROM(Electrical Erasable Programmable Read Only Memory) has replaced the conventional variable resistors.
The EEPROM memorizes the adjustment value as digital data. Thus, when adjusting the camera process it is necessary to change the data which is stored in the EEPROM. The EVR (Electrical Variable Resistor) Fixture enables communication directly with the EEPROM and is able to change the data stored in it.

The EVR Fixture is connected to and used with the camera as shown below. (For more details, refer to camera adjustment section.)



[NEW ADJUSTMENT BY E.V.R.]
EVR FIXTURE: 4822 321 61054
(Adjustment tool)
CAMERA PROCESS C.B.A
Data
EEPROM IC
Micro COMPUTER FOR Y/C SIGNAL PROCESS
8bit Data
47
54
C.SIGNAL PROCESS
8bit Data
47
54
Y.SIGNAL PROCESS

Fig. T1

New Rom IC for EVR fixture.
We are pleased to introduce the new ROM IC (4822 209 52265) for EVR fixture that we developed to adjust the VKR9015/01.
This ROM IC will provide you with many superior fetures as automatic calculation of auto white balance and/or colour reproduction and more.

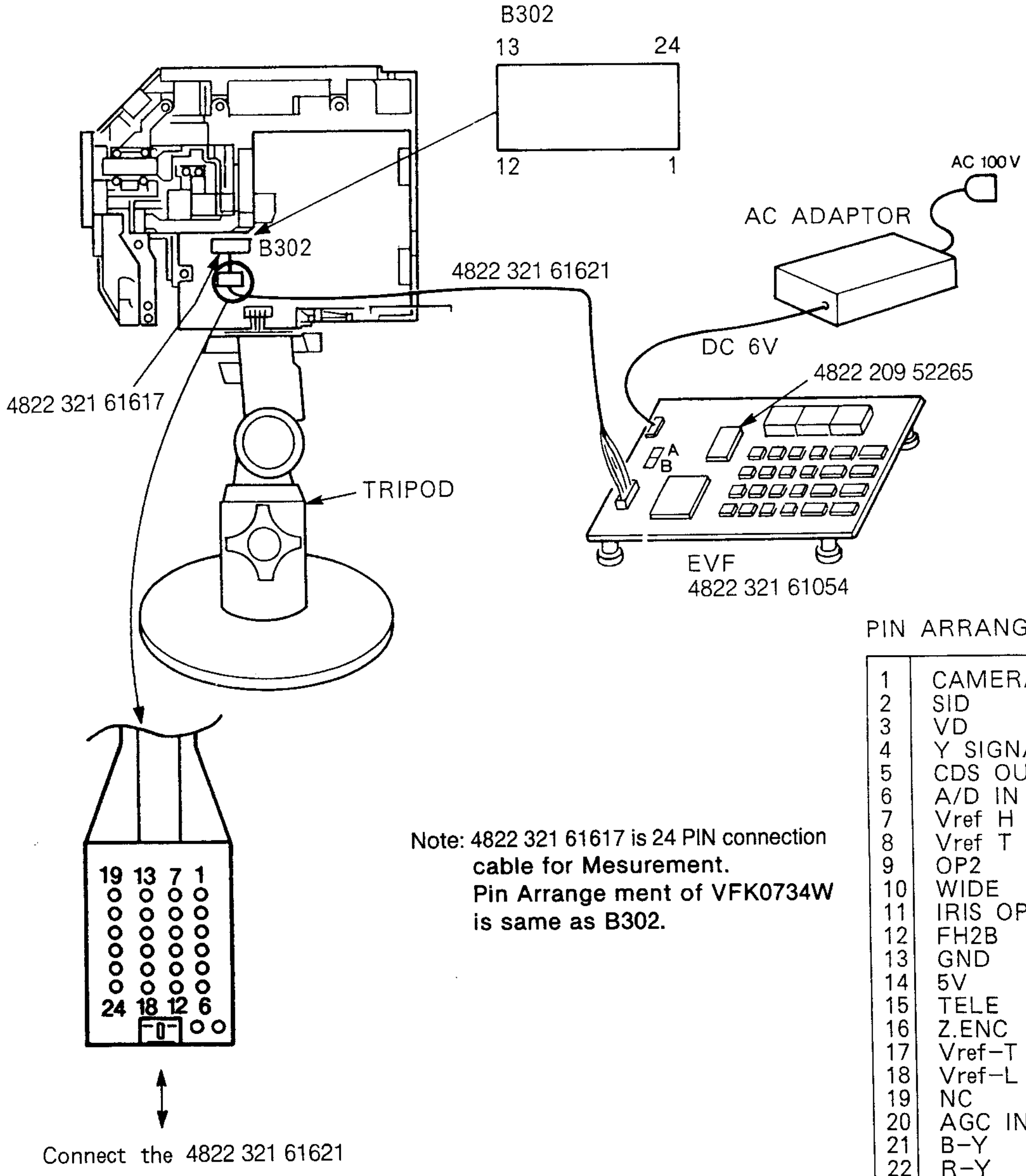
We are also pleased to introduce the new connecting cables (4822 321 61621 & 4822 321 61617) for the VKR9015/01 and EVR Fixture (4822 321 61054).

Connections between VKR9015/01 and EVR fixture are soloderless when using the 4822 321 61621 and 4822 321 61617.
Please refer to Fig T3 for how to use the cables.

ROM NUMBER & availabilty	Applicable models & Function	PART NUMBER OF EVR CONNECTION CABLE
ROM 1 4822 209 52103 available	VKR9010/20 ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	4822 321 61626

ROM 3 4822 209 52189 available	VKR6847/20, VKR6848/38, VKR6875/20 ① General Adjudtment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	4822 321 61327
ROM 5 4822 209 52265 available	VKR9015/01,VKR6878/01 ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	4822 321 61621 & 4822 321 61617 FOR VKR9015/01. 4822 321 61327 FOR VKR6878/01.
ROM 6 Not yet available		

Fig. T2 Table for EVR FIXTURE ROM Series


B302
13
24
12
1
B302
4822 321 61621
AC 100 V
AC ADAPTOR
DC 6V
4822 209 52265
A
B
4822 321 61617
TRIPOD
EVF
4822 321 61054
19 13 7 1
24 18 12 6
Connect the 4822 321 61621

Note: 4822 321 61617 is 24 PIN connection cable for Mesurement. Pin Arrange ment of VFK0734W is same as B302.

PIN ARRANGEMENT OF B302

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	FH2B
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref−T
18	Vref−L
19	NC
20	AGC IN
21	B−Y
22	R−Y
23	CAMERA TEST
24	GND

Fig. T3

1–2. Service Extension Cables.

Use the following extension cables when checking or adjusting the individual circuit boards.

	PART NBR	PART NAME	CONNECTION	Q'TY
1	4822 321 61612	18 PIN FLAT CABLE	CAMERA C.B.A. FP301~MAIN C.B.A. FP3003	1
2	4822 321 61613	18 PIN FLAT CABLE	CAMERA C.B.A. FP302~POWER C.B.A. P1001	1
3	4822 321 61346	24 PIN EXTENSION CABLE	CAMERA C.B.A. B301~CAMERA OPERATION	1
4	4822 321 61618	18 PIN EXTENSION CABLE	MAIN C.B.A. FP6101~VTR OPERATION	1
5	4822 321 61615	9 PIN EXTENSION CABLE	MAIN C.B.A. FP4001~AC HEAD	1
6	4822 321 61614	16 PIN FLAT CABLE	MAIN C.B.A. FP6001~CHASSIS	1
7	4822 321 61616	6 PIN FLAT CABLE	MAIN C.B.A. FP6002~CHASSIS	1
8	4822 321 61611	22 PIN EXTENSION CABLE	MAIN C.B.A. B6201~DRIVE C.B.A. P2001	1
9	4822 321 61619	34 PIN EXTENSION CABLE	MAIN C.B.A. B6001~POWER C.B.A. P1002	1

1–3. How to use extension cables.

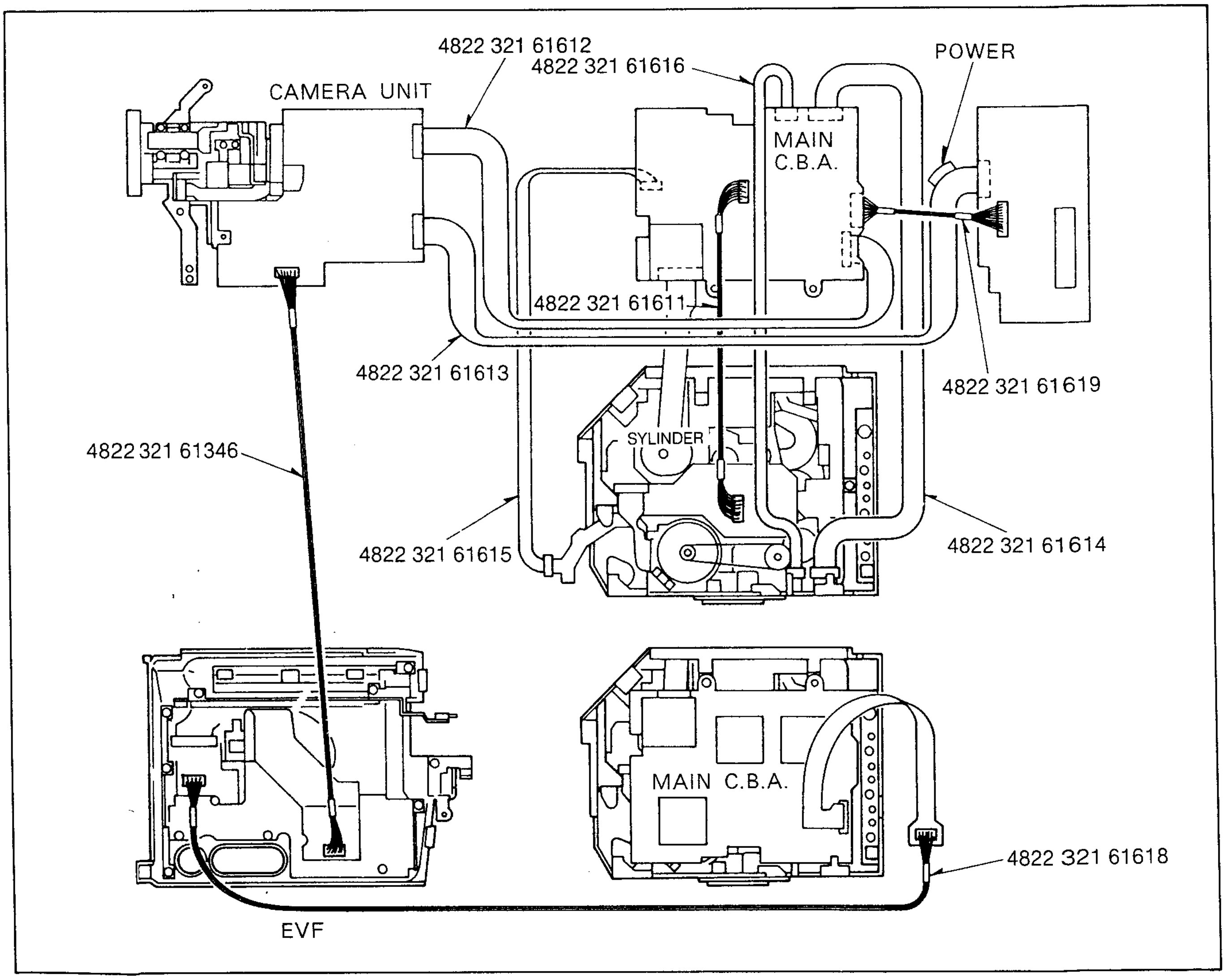

4822 321 61612
4822 321 61616
CAMERA UNIT
POWER
MAIN C.B.A.
4822 321 61611
4822 321 61613
4822 321 61619
4822 321 61346
SYLINDER
4822 321 61615
4822 321 61614
MAIN C.B.A.
4822 321 61618
EVF

Fig. T4

2. Self-diagnostic system and service test mode.

2-1. General

This model has a system self-diagnoses program which faclitates quick trouble shooting.
This model has two service modes.

Pressing the DATE/TIME(ON/OFF SWITCH), TRACKING and RESET keys simultaniously switches the unit into Service Mode 1.

Service Mode 1 displays the condition of the safety divices.

Pressing the TAPE, TRACKING and RESET keys simultaniously switches the unit into Service Mode

Service Mode 2 displays the condition of the mechanism.

2-2. Service Mode 1.

Using This model it is possible to see the RAM Data of IC6001 on the EVF in Service Mode 1. How to read the RAM data is shown in Fig.T5 to Fig.T10.

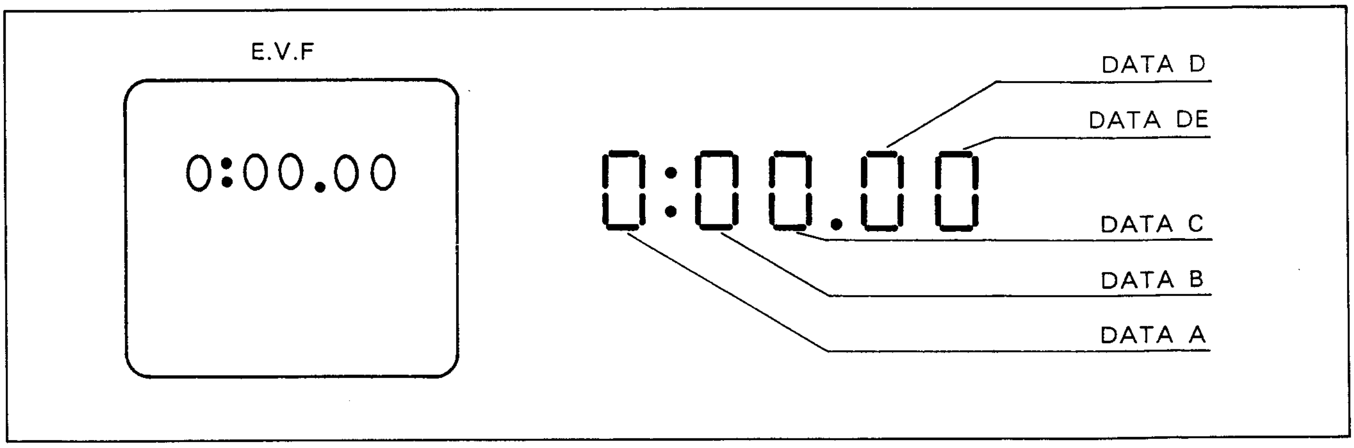


Fig. T5

(1)Information of Data A

INDICATION CONTENTS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CASSETTE SW up: 1 down: 0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
SAFETY TAB SW WITH TAB: 1 WITHOUT TAB: 0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
S-VHS SW ON: 1 OFF: 0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
S-VHS DETECT SW NORMAL: 1 S-VHS: 0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Fig. T6

All data is displayed in the Hexadecimal system(letters and numbers 0 to F).
Please refer to Fig.T4 though Fig.T9 for details on Hexadecimal numbers.

If Data A indicates "C", cassette Down Switch is in down condition.
Also Safety Tab switch is in the off condition.

(2).Information of Data B

If Data B indicate "8", There is a possibility that S.Reel Sensor detect lock condition.

INDICATION / CONTENTS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LOADING LOCK DETECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
CYL LOCK DETECT	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
T • REEL LOCK DETECT	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
S • REEL LOCK DETECT	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

0: NORMAL CONDITION **1: WARNING CONDITION**

Fig. T7

(3).Information of Data C

If Data C indicate "A", There is a possibility that DEW sensor detect dew.

INDICATION / CONTENTS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BATTERY UNDER CUT DETECT	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
DEW	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

0: NORMAL CONDITION **1: WARNING CONDITION**

Fig. T8

(4).Information of Data D

If Data D indicate "2",There is a possibility that sensor detect the tape end.

INDICATION / CONTENTS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
UNLOADIG COMMAND OUTPUT: 1 NO: 0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
TAPE END DETECT	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
BEGINING OF TAPE DETECT	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
POSITION CHATTERING	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

0: NORMAL CONDITION **1: WARNING CONDITION**

Fig. T9

(5).Information of Data E

If Data E indicate "1", There is a possibility that IC6001 generated cylinde on command.

INDICATION / CONTENTS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CYL ON COMMAND	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
CAP ON COMMAND	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
CAP REV COMMAND	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
LOADING COMMAND	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

0: NO OUTPUT 1: OUTPUT

Fig. T10

2–3. Details of Service Mode 2

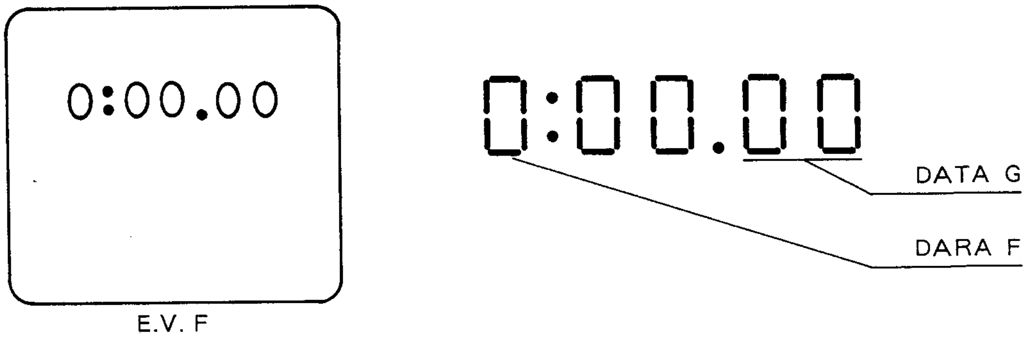


Fig. T11

(1) Information of Data F (Data F indicate the mechanism position)

Indication	Mechanism position
1	EJECT
2	PRE • EJECT
3	STOP 1
4	PRE • STOP
5	MID
6	
7	
8	STOP 2
9	
A	PLAY

(2) Information of Data G (Data G indicate the key operation mode.)

Indication	Key operation
00	STOP
02	REWIND
03	FF
06	PAUSE
08	REC
0A	PLAY
30	
53	RESER (COUNTER)
7F	NOT USED

Fig. T12

EXAM PLE FOR INDICASTION

CAMERA MODE
(Press the OPERATE switch and slide it to CAMERA side)

	SERVICE MODE 1	SERVICE MODE 2
CASSETTE DOWN WITHOUT TAPE	4: 00.60	3: 00.08
REC PAUSE	E: 00.01	A: 00.08
REC	E: 00.03	A: 00.08

VTR MODE
(Press the OPERATE switch and slide it to VTR side)

	SERVICE MODE 1	SERVICE MODE 2
CASSETTE DOWN WITHOUT TAPE	4: 00.60	3: 00.7F
STOP	E: 00.00	8: 00.7F
PLAY	E: 00.03	A: 00.7F
PLAY PAUSE	E: 00.01	A: 00.7F
FF	E: 00.03	A: 00.7F
REW	E: 00.05	A: 00.7F
CUE	E: 00.03	A: 00.03
REVIEW	E: 00.05	A: 00.02

Fig. T13

3. HOW TO CHECK DIGITAL CIRCUIT (PROCESS) (Using Ramp Generator)

3–1. Checking Principle.

The digital circuit can be checked if a ramp signal (sawtooth signal) is supplied to the input of A/D Converter (IC302–19). The output of A/D Converter is discribed below.
In addition to the A/D Converter (IC302) output, all digital ICs input and output signals become specified pulses, which are listed in schematic diagram.

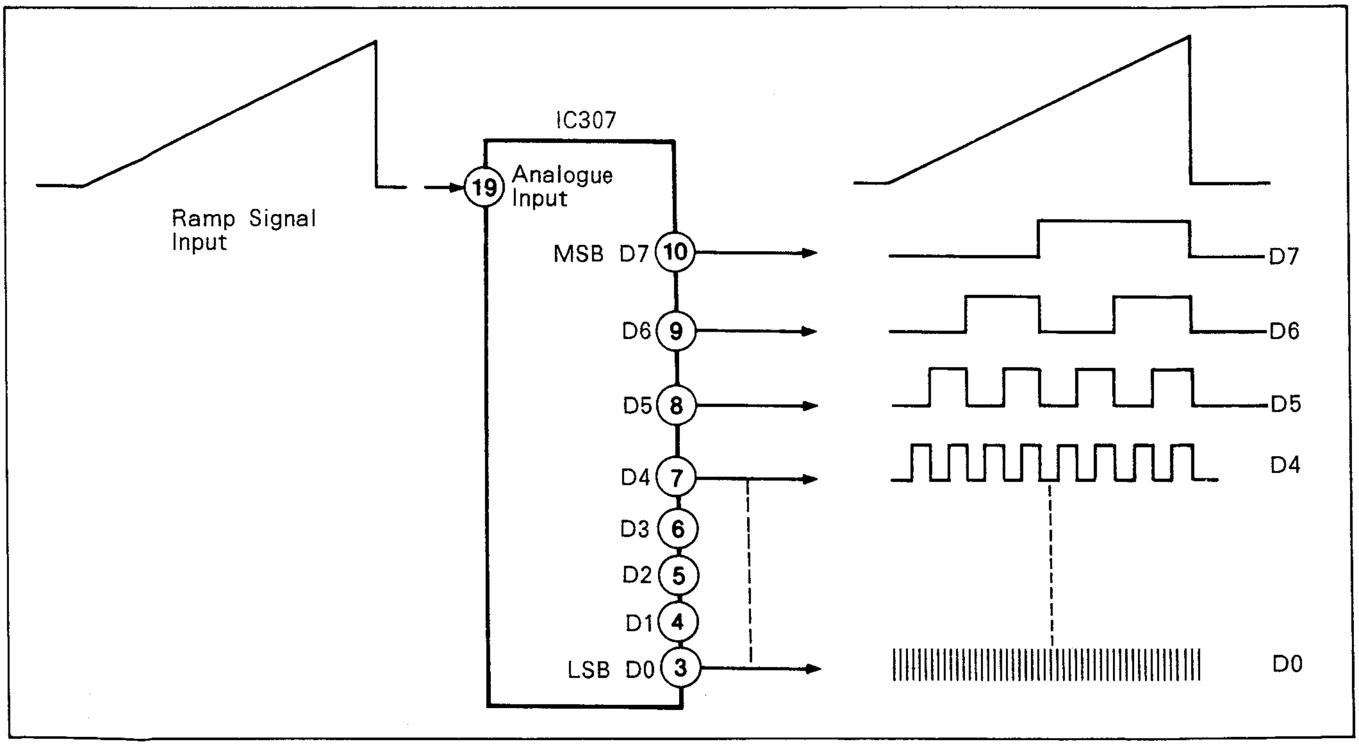
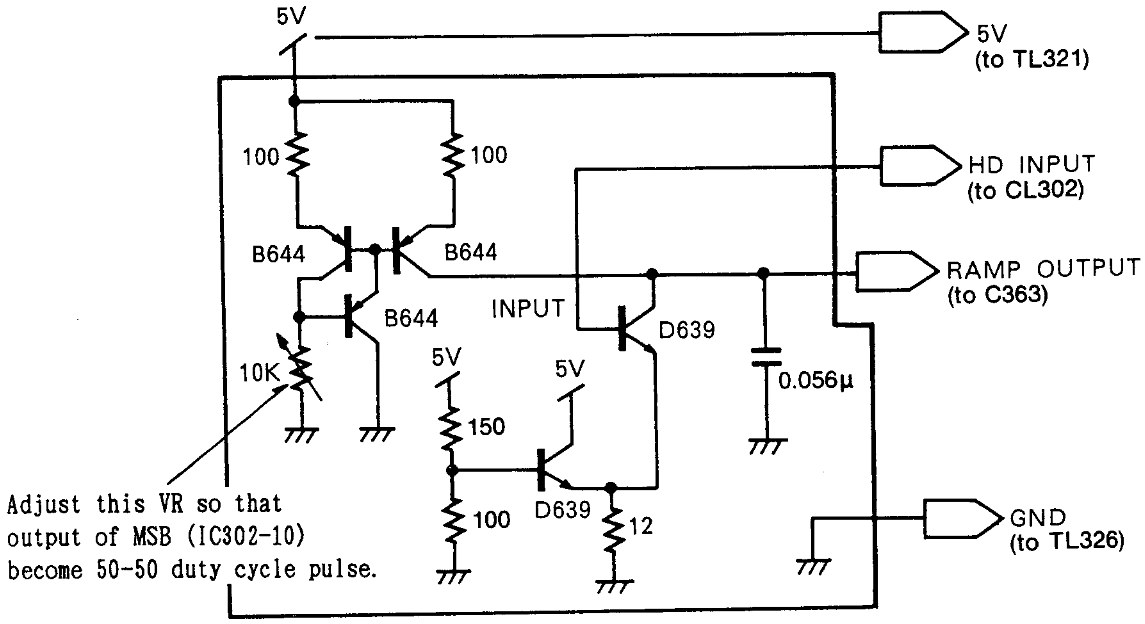


Fig. T14

3-2. How to Connect ramp generator.

In order to generate a ramp signal that synchronises with the HD(horizontal drive) of the camera, the following ramp generator circuit has been designed.
Construct and connect it to process board as shown in **Fig. T15, 16.**

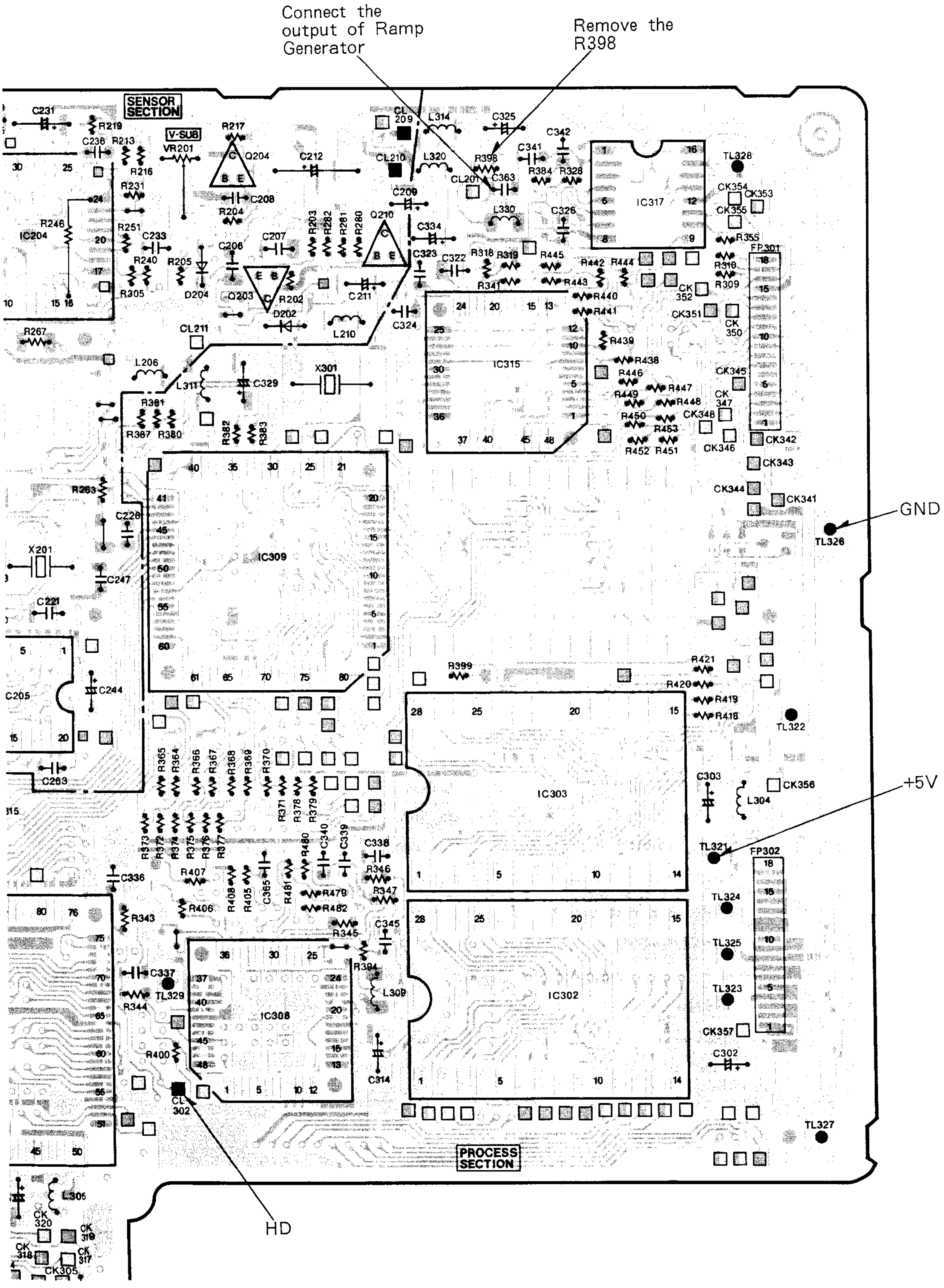


5V
5V
(to TL321)
100
100
HD INPUT
(to CL302)
B644
B644
RAMP OUTPUT
(to C363)
B644
INPUT
D639
10K
5V
5V
0.056µ
150
D639
100
12
GND
(to TL326)

Adjust this VR so that output of MSB (IC302-10) become 50-50 duty cycle pulse.

ITEMS	VALUE	PCS
RESISTOR		
	12ohm	1
	100ohm	3
	150ohm	1
VARIABLE RESISTOR		
	10Kohm	1
TRANSISTOR		
2SB644	PNP	3
2SD639	NPN	2
CAPACITOR		
	0.056µ	1

Fig. T15


SENSOR SECTION
V-SUB
IC204
IC309
IC315
IC317
IC303
IC302
IC308
FP301
FP302
X201
X301
Q203
Q204
Q210
R398
CL209
CL210
CL302
TL326
TL321
TL322
TL327
PROCESS SECTION

Connect the output of Ramp Generator

Remove the R398

GND

+5V

HD

Fig. T16

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

2-1-1. DISASSEMBLY FLOW CHART

The following flowchart describes the order or steps for removing cabinet parts and certain printed circuit boards to make accessable the items needing service.
To reassemble the unit, follow the steps in reverse order.

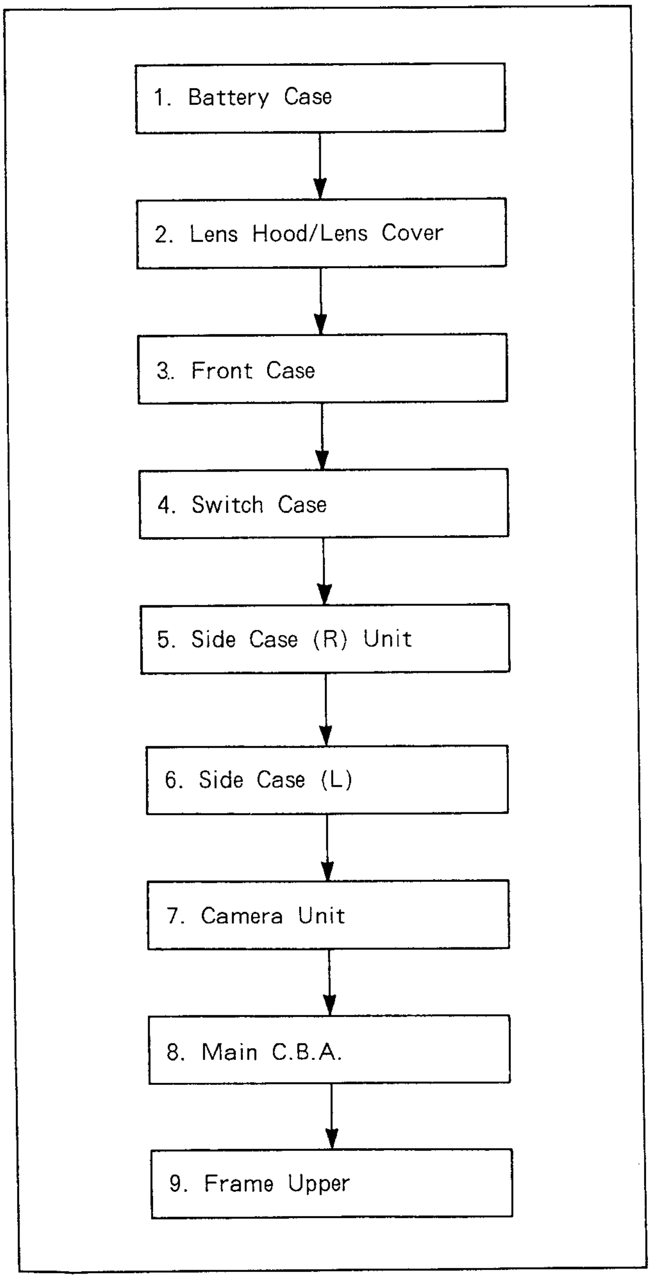

1. Battery Case
2. Lens Hood/Lens Cover
3. Front Case
4. Switch Case
5. Side Case (R) Unit
6. Side Case (L)
7. Camera Unit
8. Main C.B.A.
9. Frame Upper

Fig. D1

2-1-2. DETAILED DISASSEMBLY METHOD

1. Removed of Battery Case

2. Removed of Lens Hood/Lens Cover
   1) Rotate lens Hood to counter–clockwise and Remove it.
   2) Remove lens cover.
   3) Remove.....Screw A.

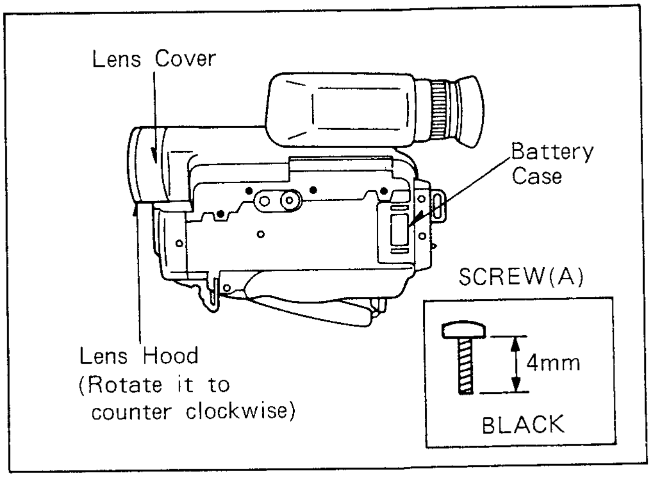

Lens Cover
Battery Case
SCREW(A)
4mm
BLACK
Lens Hood
(Rotate it to
counter clockwise)

Fig. D2

3. Removal of Front Case

   Remove.....5 screws
   Disconnect.....Mic Connector

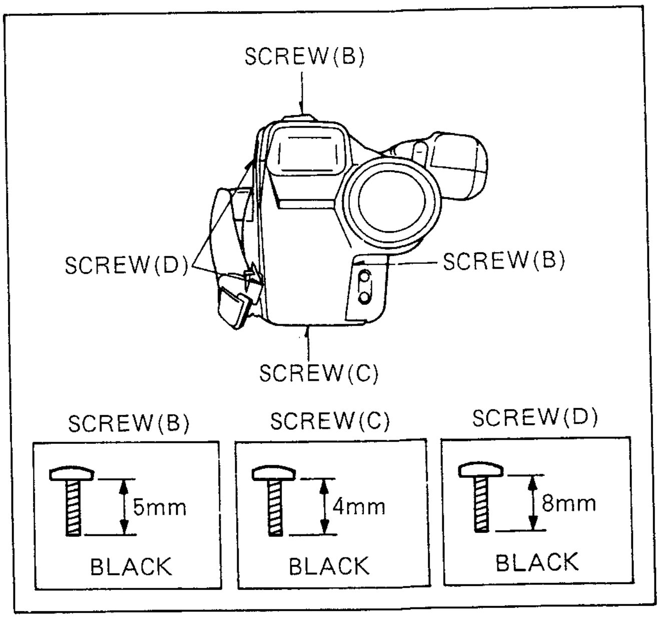

SCREW(B)
SCREW(D)
SCREW(B)
SCREW(C)
SCREW(B)
5mm
BLACK
SCREW(C)
4mm
BLACK
SCREW(D)
8mm
BLACK

Fig. D3

4. Removal of Switch Case

Remove.....2 screws

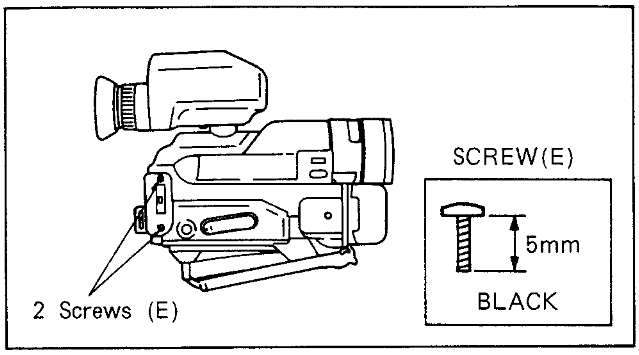

SCREW(E)
5mm
BLACK
2 Screws (E)

Fig. D4

5. Removal of Side Case (R)

Remove.....6 screws
Disconnect.....2 flexible cable

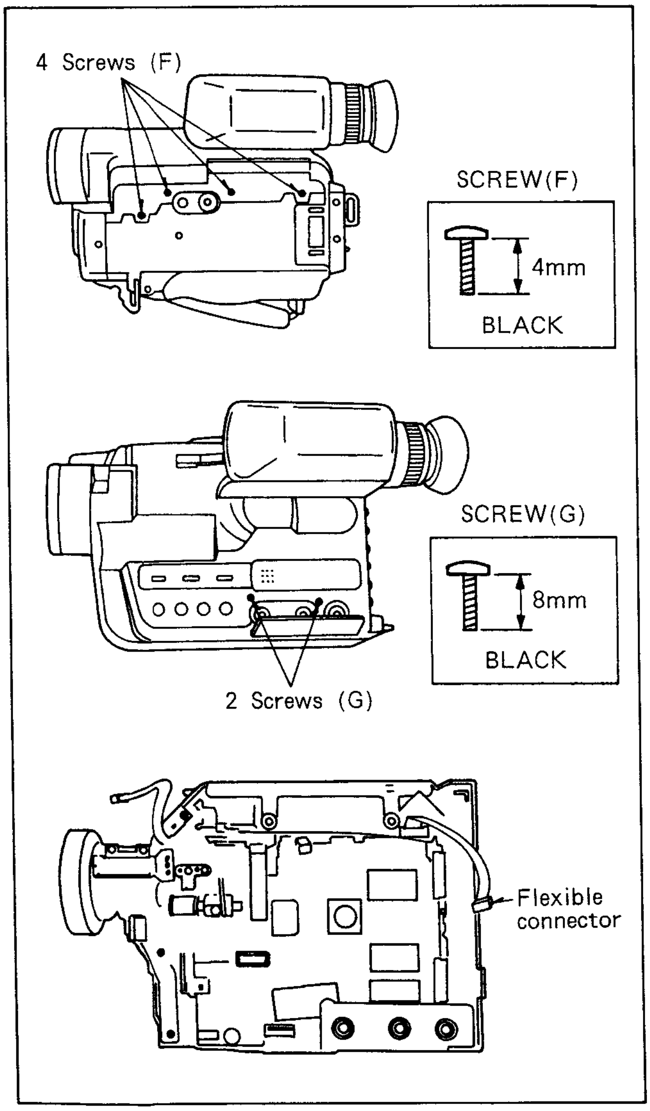

4 Screws (F)
SCREW(F)
4mm
BLACK
SCREW(G)
8mm
BLACK
2 Screws (G)
Flexible connector

Fig. D5

6. Removal of Side Case (L)

(1) Remove.....5 screws.
(2) Disconnect...1 direct connected connector

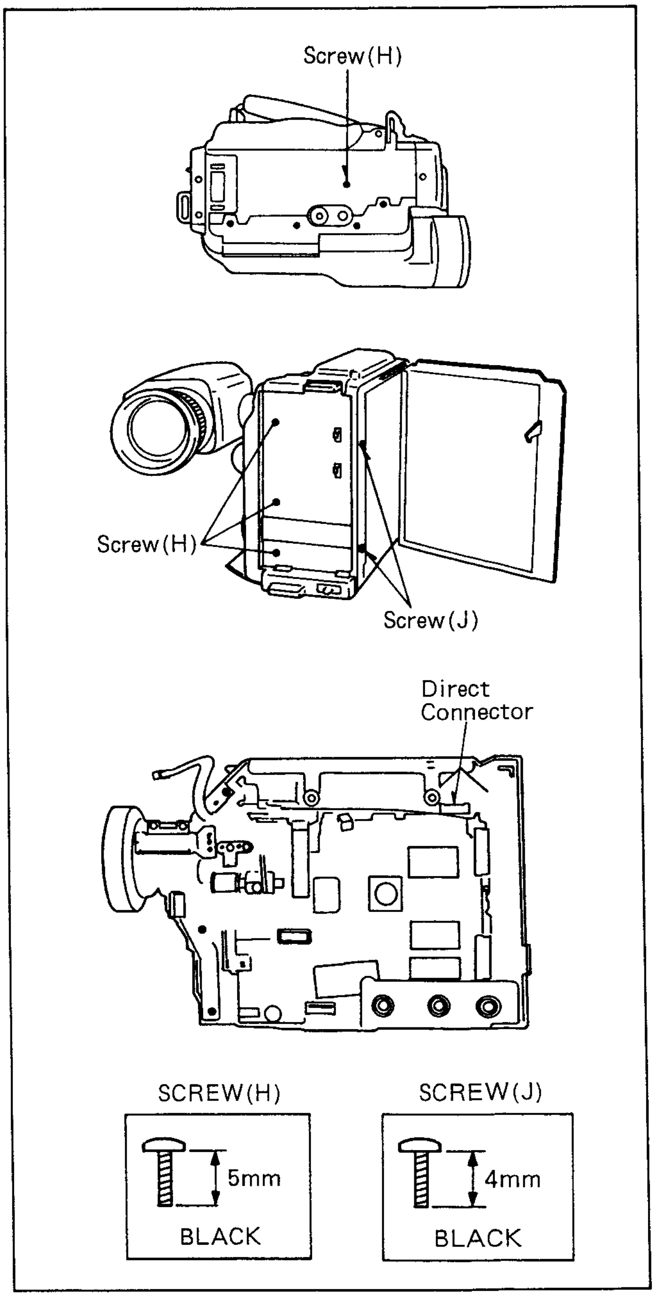

Screw(H)
Screw(H)
Screw(J)
Direct Connector
SCREW(H)
5mm
BLACK
SCREW(J)
4mm
BLACK

Fig. D6

7. Removal of Camera Unit

1) Remove.....3 screws.
2) Disconnect.....2 Flexible connectors.

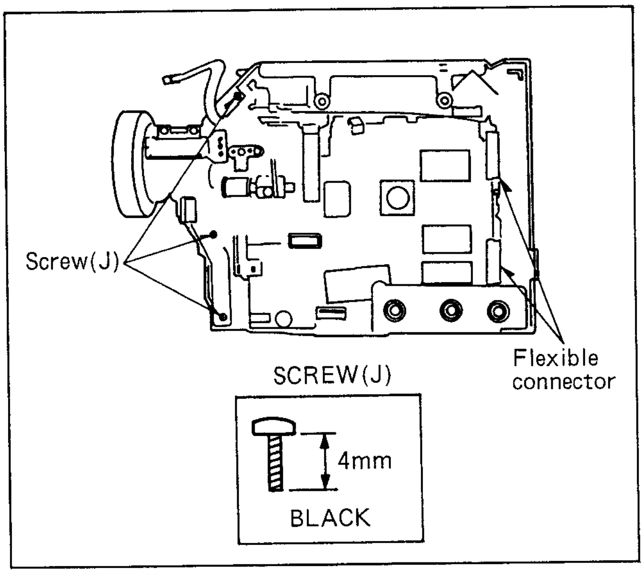

Screw(J)
Flexible
connector
SCREW(J)
4mm
BLACK

Fig. D7

8. Removal of Main C.B.A.
   1) Remove.....4 screws.
   2) Disconnect... 6 Flexible connectors.
      1 Direct connectors.
      (Between Power C.B.A. and Main C.B.A.)
   3) Disconnect... 1 Direct connector.
      (Lift up the C.B.A.)
   4) Slide the Main C.B.A. to arrow mark direction and remove it.

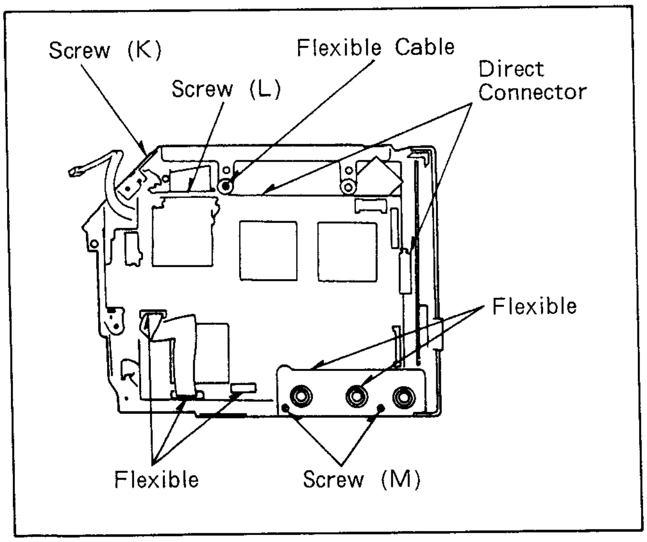

Screw (K)
Flexible Cable
Screw (L)
Direct
Connector
Flexible
Flexible
Screw (M)

Fig. D8

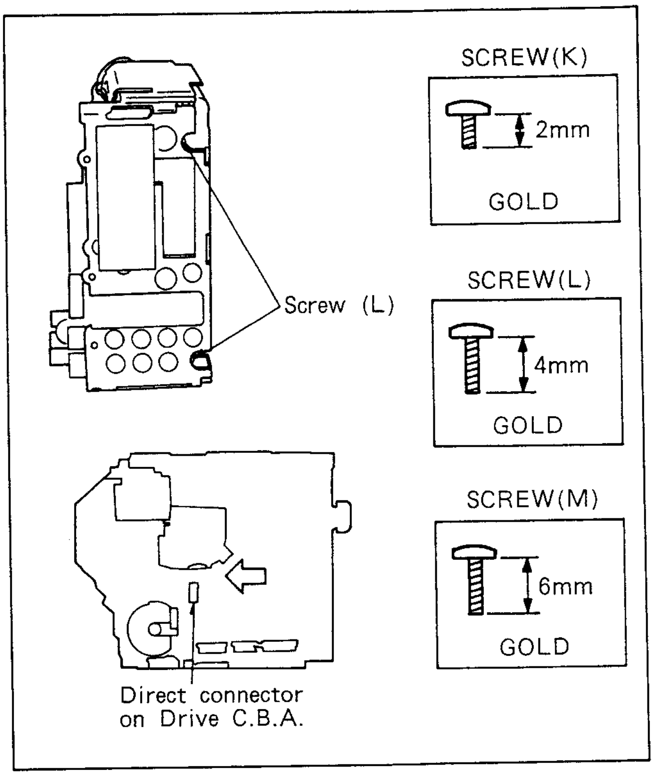

SCREW(K)
2mm
GOLD
Screw (L)
SCREW(L)
4mm
GOLD
SCREW(M)
6mm
GOLD
Direct connector
on Drive C.B.A.

Fig. D9

9. Removal of Main Flame
   1) Remove.....4 Screws.

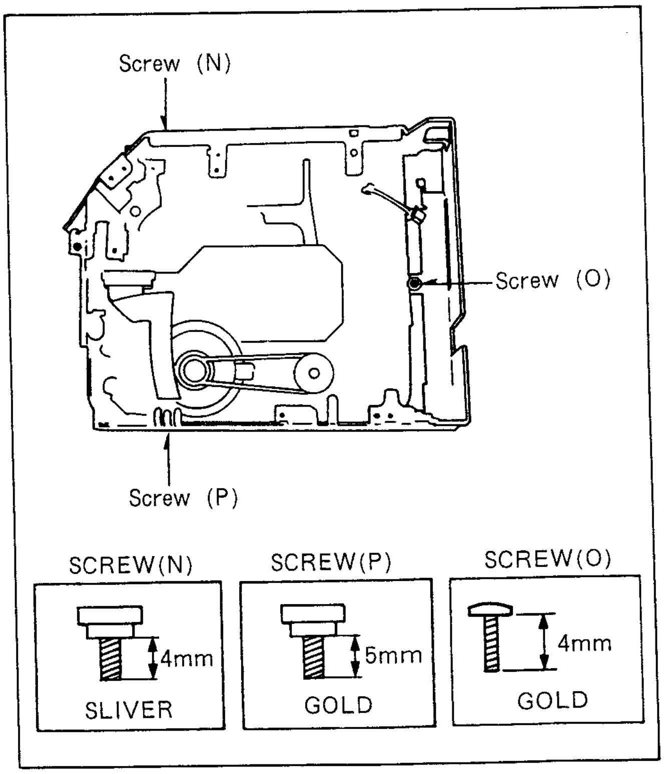

Screw (N)
Screw (O)
Screw (P)
SCREW(N)
4mm
SLIVER
SCREW(P)
5mm
GOLD
SCREW(O)
4mm
GOLD

Fig. D10

2-2. DISASSEMBLY PROCEDURES OF MECHANISM

1. Removal of Cassette Holder Unit.

(1) Unsolder following flexible connectors on the bottom side.

(1) FLEXIBLE CONNECTOR TO SUPPLY PHOTO TR.
(2) FLEXIBLE CONNECTOR TO TAKE UP PHOTO TR.
(3) FLEXIBLE CONNECTOR TO LOADING MOTOR.
(4) FLEXIBLE CONNECTOR TO SENSOR LED.

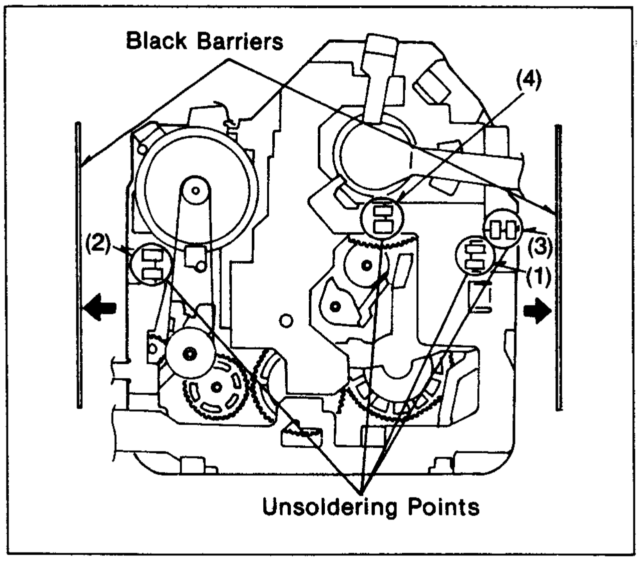

Black Barriers
(4)
(2)
(3)
(1)
Unsoldering Points

Fig. M1

(2) Remove 4 red screws indicated below.

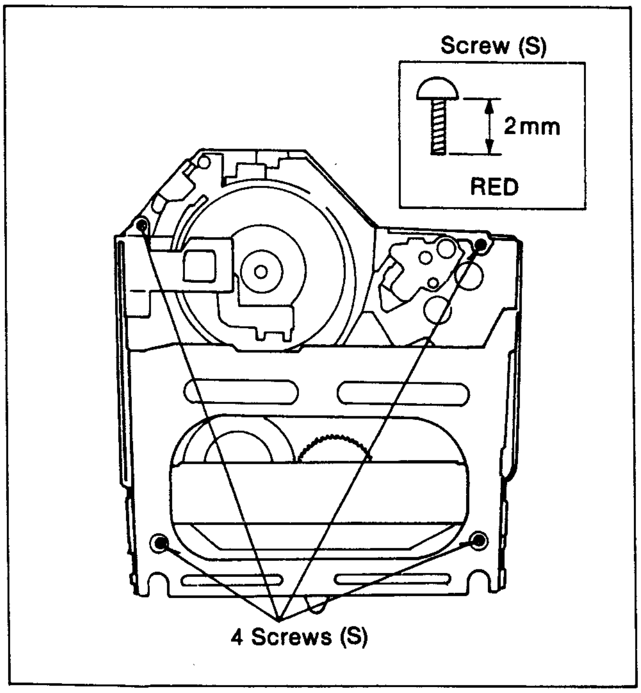

Screw (S)
2mm
RED
4 Screws (S)

Fig. M2

(3) Release Eject Lock Lever and take out Cassette Holder Unit.

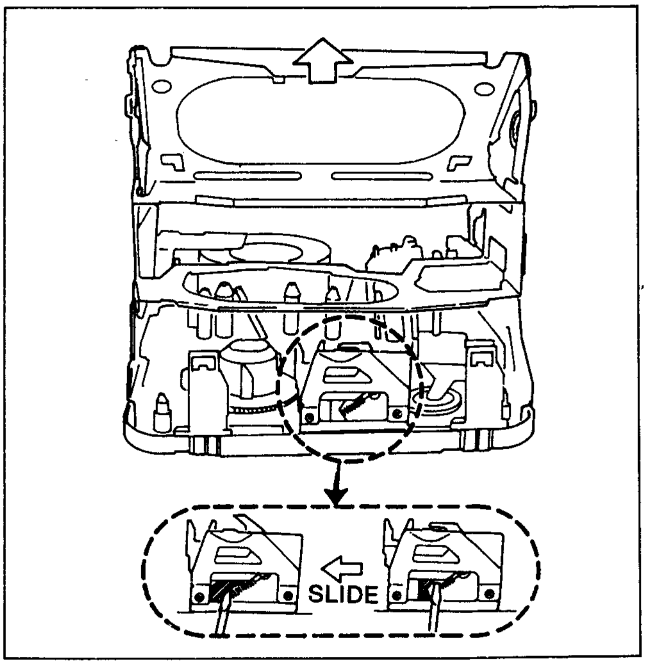


Fig. M3

2. REMOVAL OF DD CYLINDER UNIT.

Note: *
Upper Cylinder Unit is not replaceable on it's own. So only DD Cylinder Unit is available for ordering service parts.

(1) Remove RT (Rotary Transformer) Connector by using a screw driver.
(2) Remove 3 screws to take out DD Cylinder Unit.

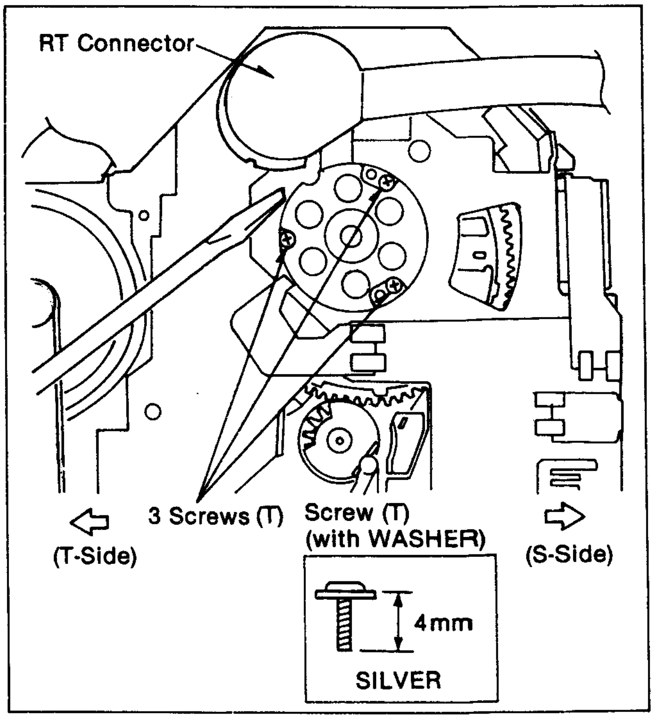

RT Connector
3 Screws (T)
Screw (T)
(with WASHER)
(T-Side)
(S-Side)
4mm
SILVER

Fig. M4

3. REMOVAL OF S–RAIL UNIT, LOADING MOTOR UNIT & TENSION REGULATOR UNIT.

(1) Move tape loading Posts(S1, T1 and T2) half way in the tape loading direction by applying 1.5DC to Loading Motor.

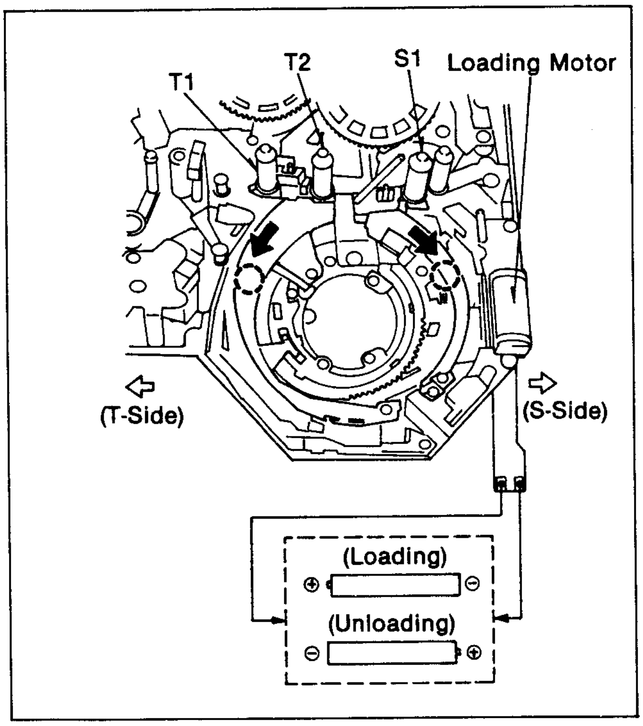

T1
T2
S1
Loading Motor
(T-Side)
(S-Side)
(Loading)
⊕
⊖
(Unloading)
⊖
⊕

Fig. M5

(2) Remove 2 screws and take out S–Rail Unit.

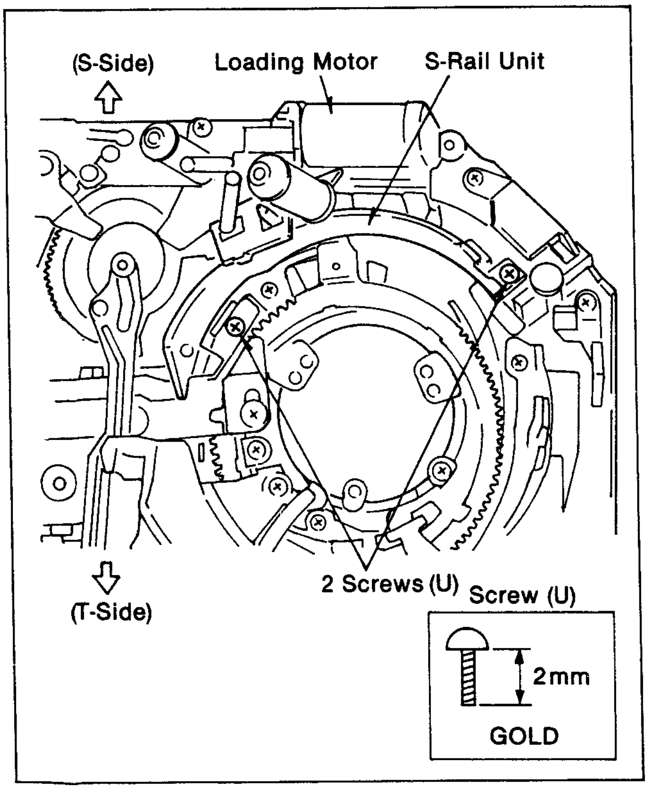

(S-Side)
Loading Motor
S-Rail Unit
(T-Side)
2 Screws (U)
Screw (U)
2mm
GOLD

Fig. M6

(3) Remove 2 screws (Slightly move Loading Posts in the unloading direction.) and take out Loading Motor Unit.

(4) Unhook the spring(* Remember the original hooking position for reinstalling after), remove a washer and take out Tension Regulator Unit.
Don't lose a spacer underneath.

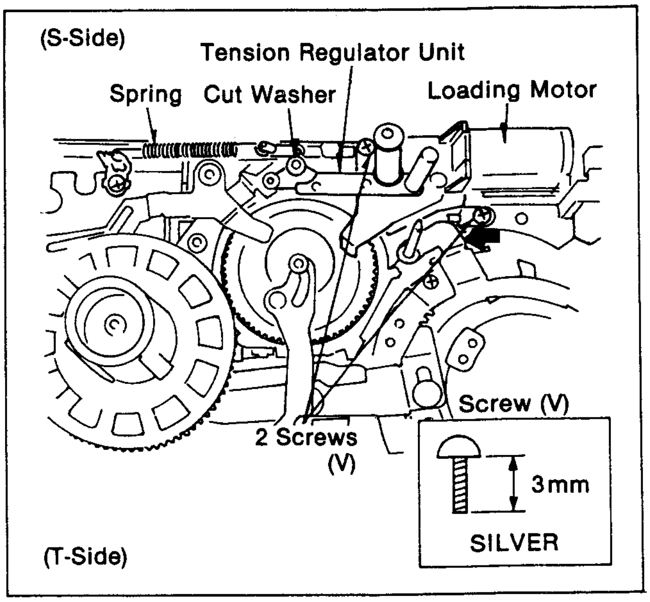

(S-Side)
Tension Regulator Unit
Spring
Cut Washer
Loading Motor
Screw (V)
2 Screws (V)
3mm
SILVER
(T-Side)

Fig. M7

4. REMOVAL OF SUPPLY REEL TABLE, EJECT LEVER UNIT AND PAD ARM.

(1) Remove a washer and take out Supply Reel Table. Don't lose a spacer underneath.

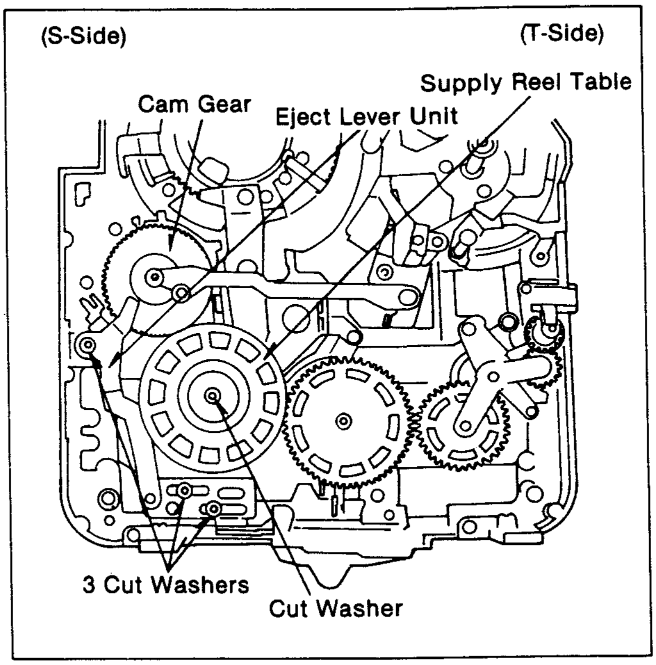

(S-Side)
(T-Side)
Supply Reel Table
Cam Gear
Eject Lever Unit
3 Cut Washers
Cut Washer

Fig. M8

(2) Remove 3 washers, 2 screws on Eject Lock Base to make a clearance (* Eject Lock Base is soldered on the flexible P.C. Board.) and take out Eject Lock Lever.

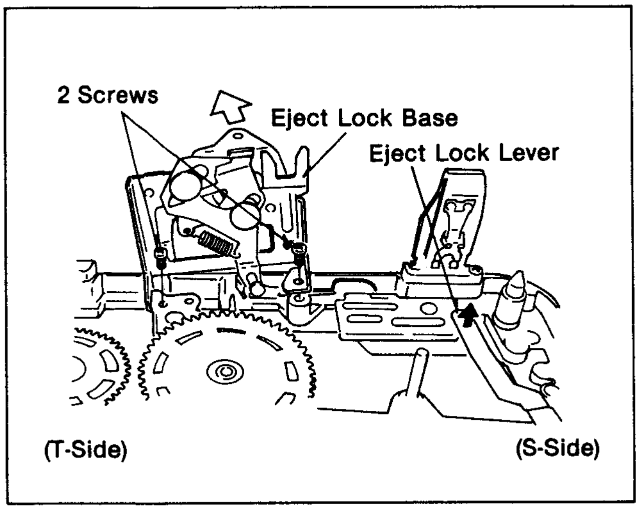

2 Screws
Eject Lock Base
Eject Lock Lever
(T-Side)
(S-Side)

Fig. M9

(3) Remove 2 washers, pull Pinch Drive Arm to the left (S-side) and take it out.

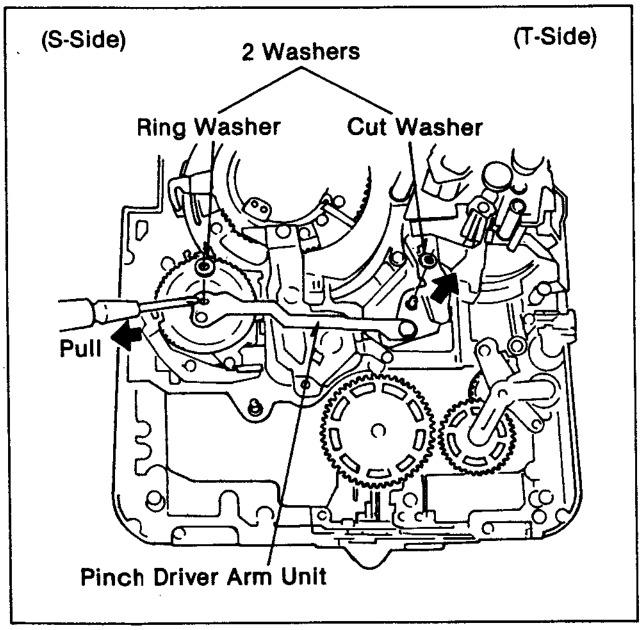

(S-Side)
2 Washers
(T-Side)
Ring Washer
Cut Washer
Pull
Pinch Driver Arm Unit

Fig. M10

(4) Remove a washer and take out Pad Arm.

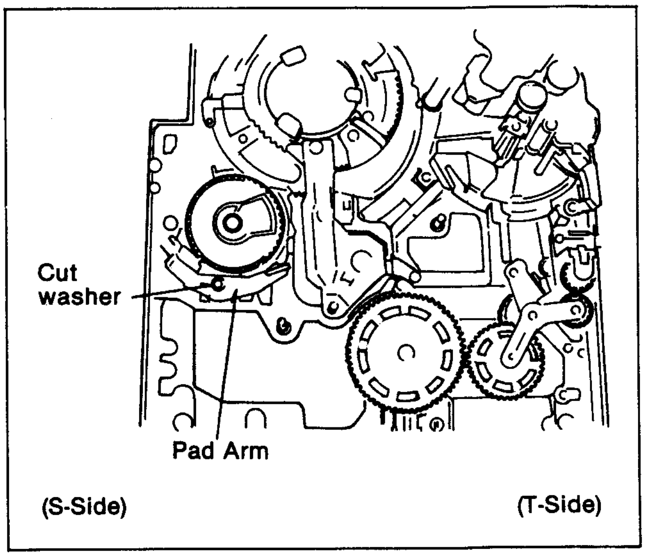

Cut washer
Pad Arm
(S-Side)
(T-Side)

Fig. M11

5. REMOVAL OF T-RAIL UNIT, SWING ARM UNIT, LOADING UNIT AND MODE SW UNIT

(1) Remove 2 screws and take out T-Rail Unit. (* Flexible Connector of Sensor LED has to be unsoldered on the bottom side.)

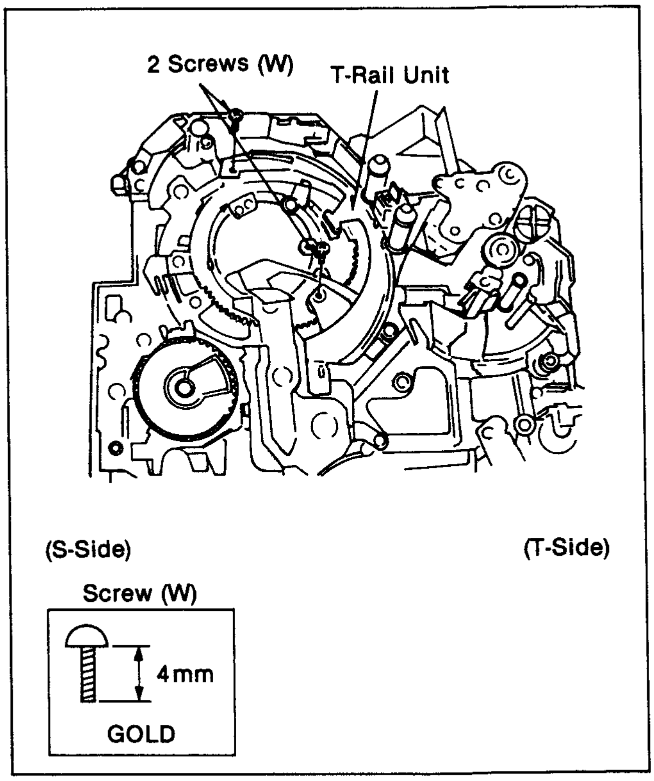

2 Screws (W)
T-Rail Unit
(S-Side)
(T-Side)
Screw (W)
4mm
GOLD

Fig. M12

Caution:
Do not touch inside cam Gear and keep the cam Gear away from grease and dusts.

(2) Remove 2 screws, take out Holder Angle and Swing Arm Unit.

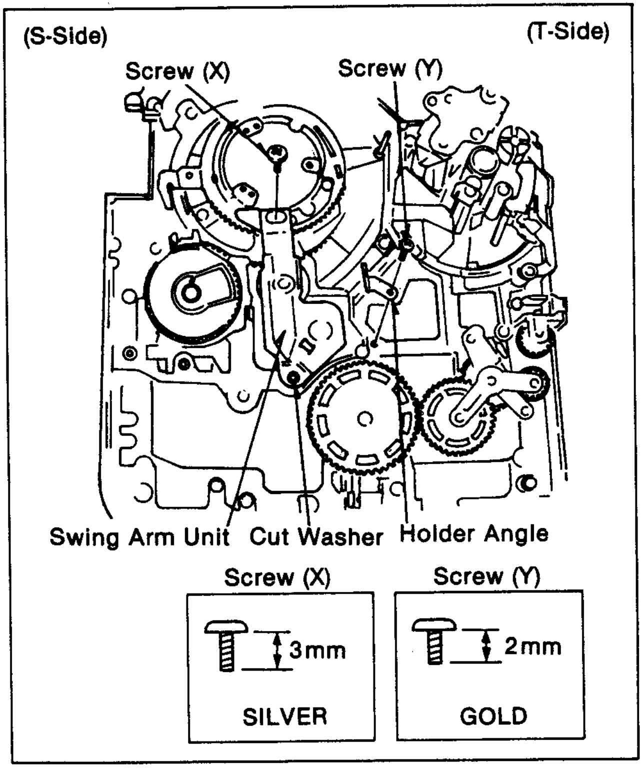

(S-Side)
(T-Side)
Screw (X)
Screw (Y)
Swing Arm Unit
Cut Washer
Holder Angle
Screw (X)
3mm
SILVER
Screw (Y)
2mm
GOLD

Fig. M13

(3) Remove 5 screws.

(4) Loosen Screw (a) to make a clearance and take out Loading Unit.

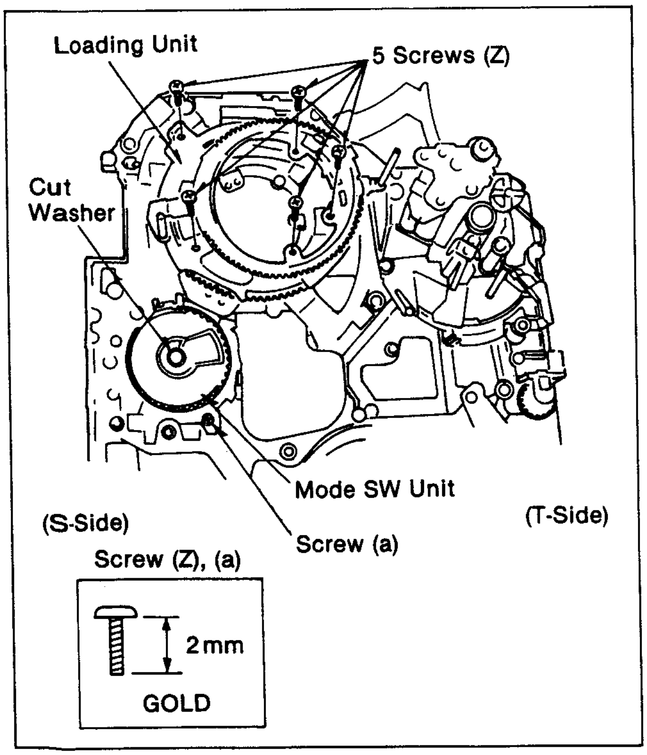

Loading Unit
5 Screws (Z)
Cut Washer
Mode SW Unit
(S-Side)
(T-Side)
Screw (a)
Screw (Z), (a)
2mm
GOLD

Fig. M14

(5) Remove screw (a) and cut washer to take out mode SW unit. (※Mode SW Base is soldered on the flexible P.C. Board).

2-3. ASSEMBLY AND PHASE ADJUSTMENT PROCEDURES OF MECHANISM

1. ASSEMBLY AND PHASE ADJUSTMENT OF LOADING UNIT.

   (1) Install Loading Unit and tighten 5 screws.
   (2) Adjust mechanical phase so that phase marks (See-through holes) meet on both supply and take up sides as shown below.

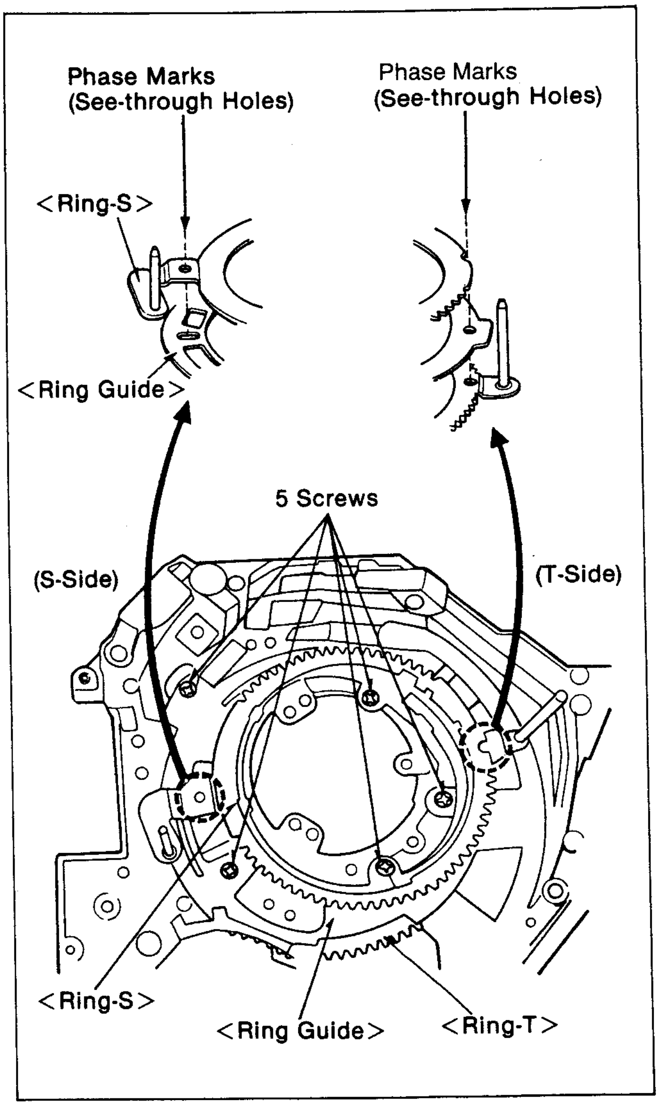

Phase Marks (See-through Holes)
Phase Marks (See-through Holes)
<Ring-S>
<Ring Guide>
5 Screws
(S-Side)
(T-Side)
<Ring-S>
<Ring Guide>
<Ring-T>

Fig. M15

2. ASSEMBLY AND PHASE ADJUSTMENT OF CAM GEAR.

   (1) Install Cam Gear so that uneven cog portion meets the phase mark on the chassis and put the washer.

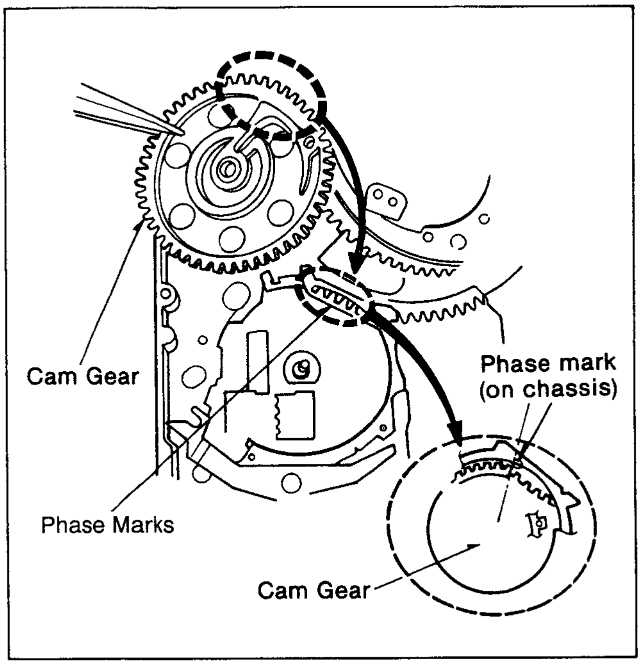

Cam Gear
Phase mark
(on chassis)
Phase Marks
Cam Gear

Fig. M16

3. ASSEMBLY OF PENDULUM ARM UNIT.

(1) Install Swing Arm Unit and tighten 2 screws with the holder angle.
(2) After that, Confirm that the phase mark on Loading Ring−T can be seen through the square cutout of Swing Arm Unit. Also, the phase mark of Swing Arm Unit (V−cutout) is meeting the phase mark on Loading Ring−S Unit on the bottom side. Those phase marks naturally come to the specific positions, if the previous phase adjustments have been done correctly.

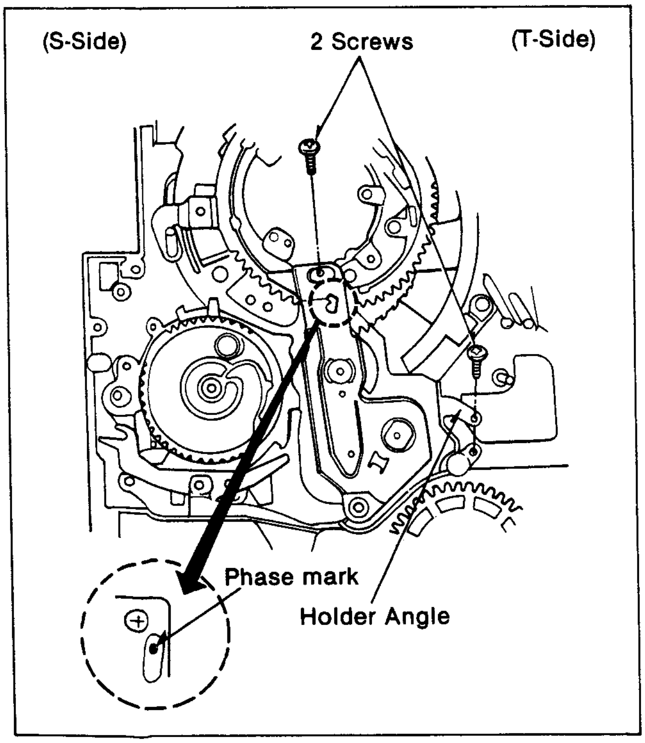

(S-Side)
2 Screws
(T-Side)
Phase mark
Holder Angle

Fig. M17

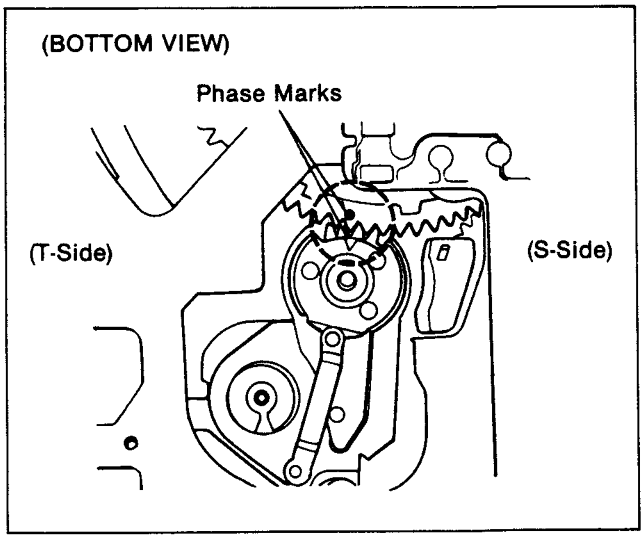

(BOTTOM VIEW)
Phase Marks
(T-Side)
(S-Side)

Fig. M18

4. ASSEMBLY OF LOADING UNIT PINCH DRIVE ARM UNIT AND CONFIRMATION OF MECHANICAL MOVEMENT

(1) Install Loading Motor Unit and tighten one screw. (one more screw has to be tightened after installing Pinch Drive Arm Unit, which is explained after.)

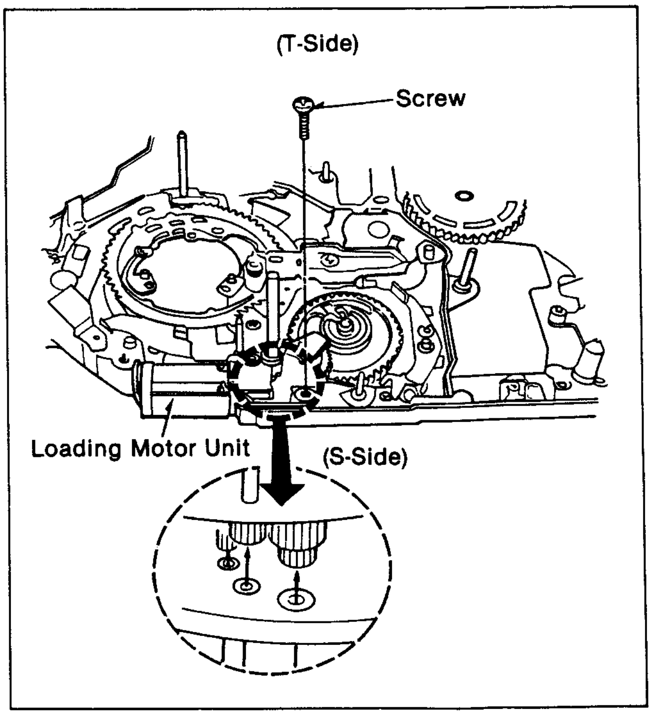

(T-Side)
Screw
Loading Motor Unit
(S-Side)

Fig. M19

(2) Install Pinch Drive Arm Unit and put washer (A).

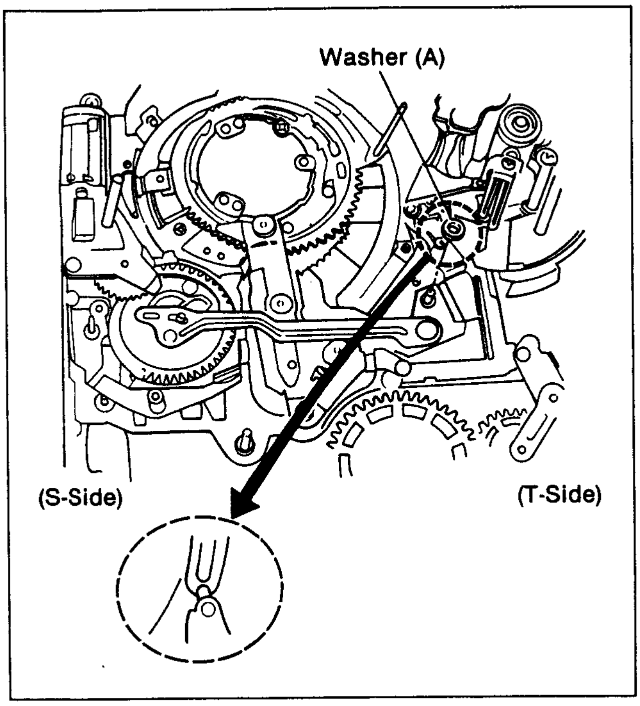

Washer (A)
(S-Side)
(T-Side)

Fig. M20

(3) Move Pinch Roller to the unloading position by finger and put washer (B).

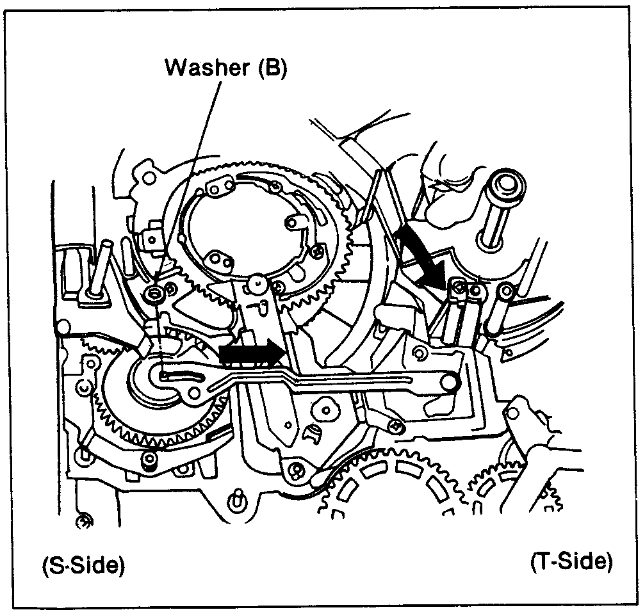

Washer (B)
(S-Side)
(T-Side)

Fig. M21

(4) Slightly move Loading Ring–S in the unloading direction by applying 1.5VDC to Loading Motor and tighten a screw.

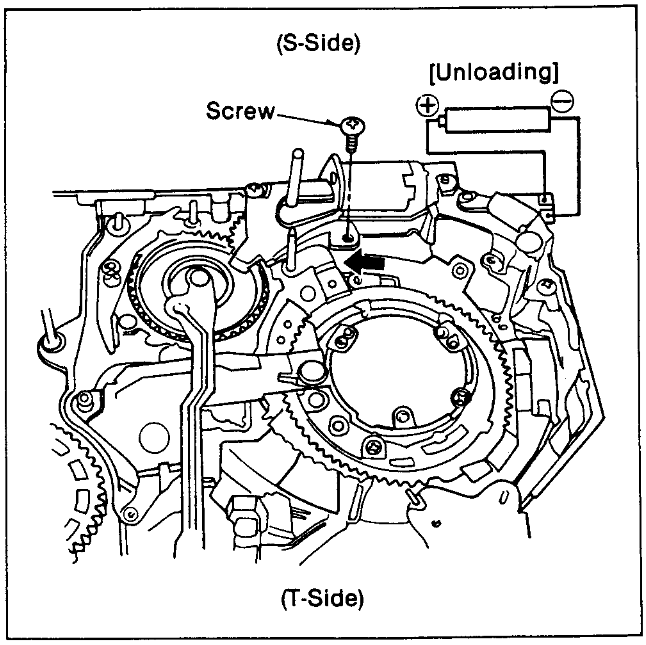

(S-Side)
[Unloading]
Screw
⊕
⊖
(T-Side)

Fig. M22

(5) Confirmation of Mechanical Movement and phase.
In this condition, confirm that the mechanism smoothly moves in both loading and unloading directions by changing the polarity of the battery.
After that, move the mechanism back to the phase adjustment position and confirm all phase marks come to each specific position.

5. ASSEMBLY OF S–RAIL UNIT AND T–RAIL UNIT

(1) Install S–Rail Unit passing Link Post of Ring–S through the linking hole of the S–Rail Unit, and tighten 2 screws.

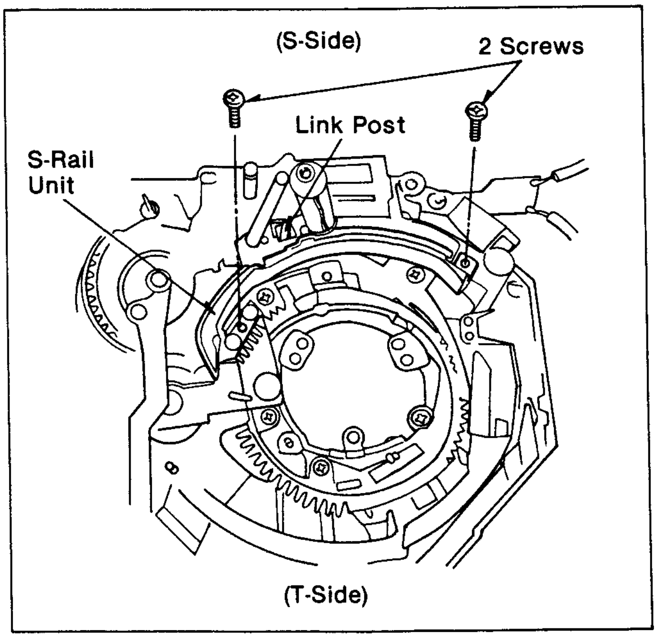

(S-Side)
2 Screws
Link Post
S-Rail Unit
(T-Side)

Fig. M23

(2) In the same way, install T–Rail Unit and tighten 2 screws.
(3) Solder the flexible connector of Sensor LED on the bottom side.

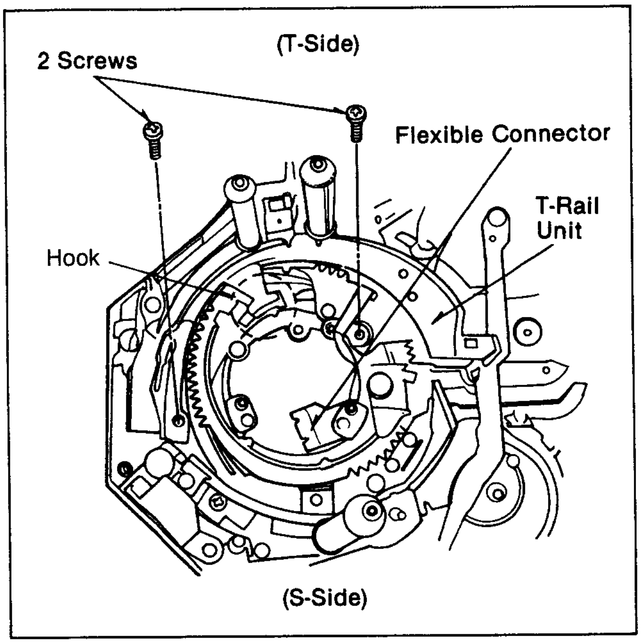

(T-Side)
2 Screws
Flexible Connector
T-Rail Unit
Hook
(S-Side)

Fig. M24

6. ASSEMBLY OF EJECT LEVER UNIT

(1) Install Eject Lever Unit and link the arm with Eject Lock Base.
(2) Fix Eject Lock Base with 2 screws and Eject Lever Unit with 3 washers.

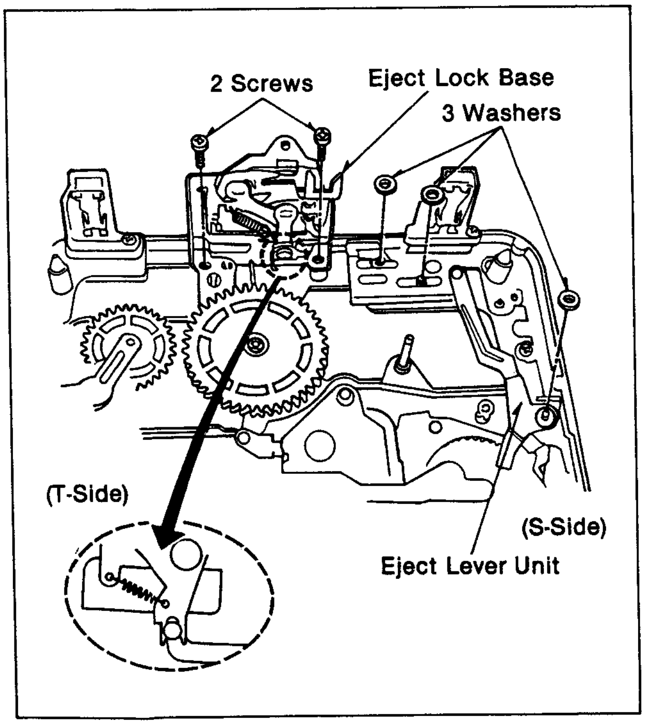

2 Screws
Eject Lock Base
3 Washers
(T-Side)
(S-Side)
Eject Lever Unit

Fig. M25

7. ASSEMBLY OF TENSION REGULATOR UNIT.

(1) Install Tension Regulator Unit so that the guide arm fits in outer inside of Cam Gear.
(2) Put the washer and hook Tenshion Spring to the original position.

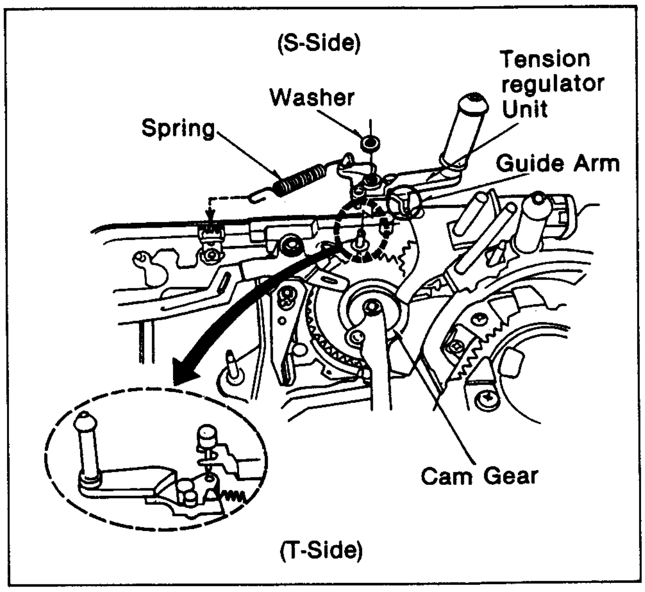

(S-Side)
Tension regulator Unit
Washer
Spring
Guide Arm
Cam Gear
(T-Side)

Fig. M26

8. ASSEMBLY OF SUPPLY REEL TABLE

(1) Install Supply Reel Table and put a washer.

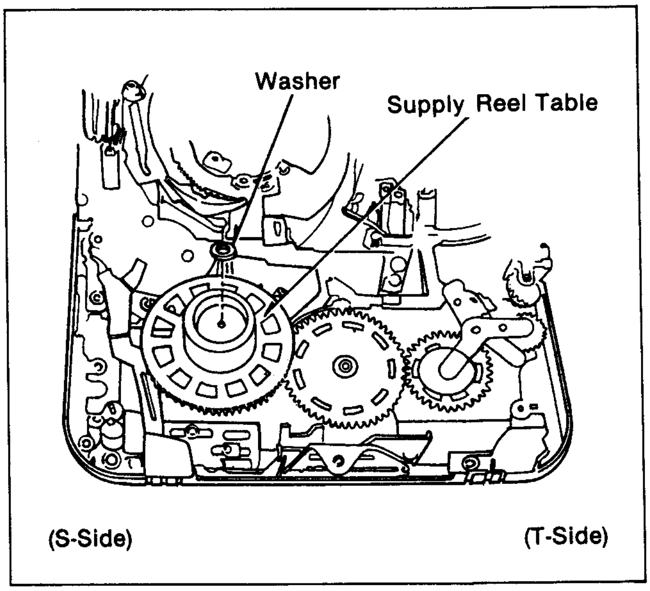

Washer
Supply Reel Table
(S-Side)
(T-Side)

Fig. M27

9. ASSEMBLY OF DD CYLINDER UNIT

(1) Install DD Cylinder unit so that the fixating pins fit into the fixating holes, and tighten 3 screws from the bottom side.

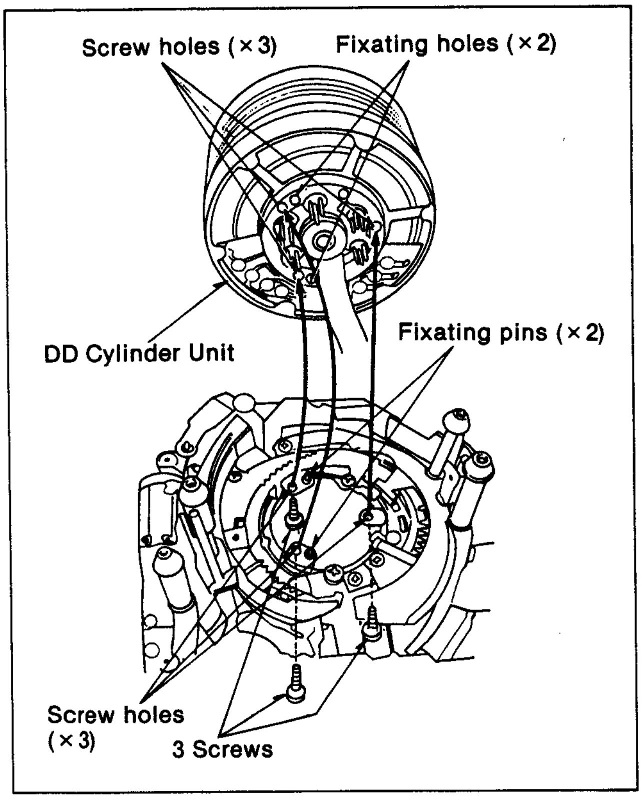

Screw holes (×3)
Fixating holes (×2)
DD Cylinder Unit
Fixating pins (×2)
Screw holes (×3)
3 Screws

Fig. M28

10. ASSEMBLY OF RT CONNECTOR

(1) Hold RT Connector aiming the phase mark of RT Connector (while indication) to the phase mark on the chassis.

(2) Carefully Install the RT Connector passing lead pins of DD Cylinder Unit through each corresponding hole of the RT Connector.

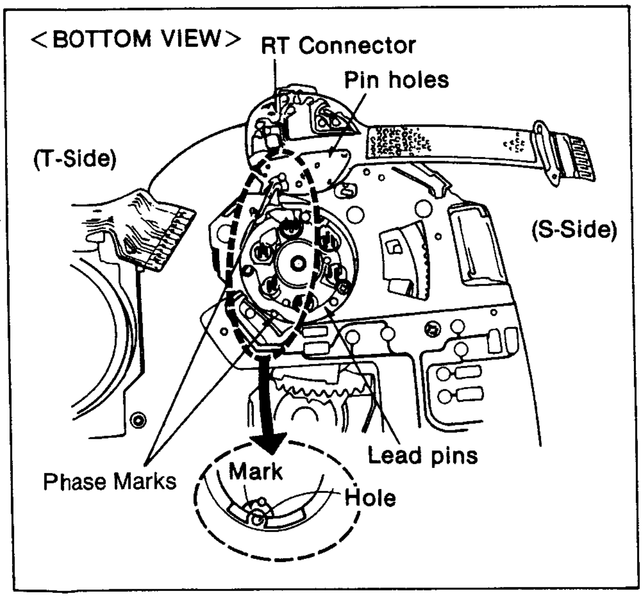

<BOTTOM VIEW>
RT Connector
Pin holes
(T-Side)
(S-Side)
Lead pins
Phase Marks
Mark
Hole

Fig. M29

11. ASSEMBLY OF CASSETTE HOLDER UNIT.

(1) Install Cassette Holder Unit and tighten 4 red screws.

(2) Finally, solder flexible connectors of Supply Photo Sensor, Take up photo Sensor and Loading Motor Unit on the bottom side.

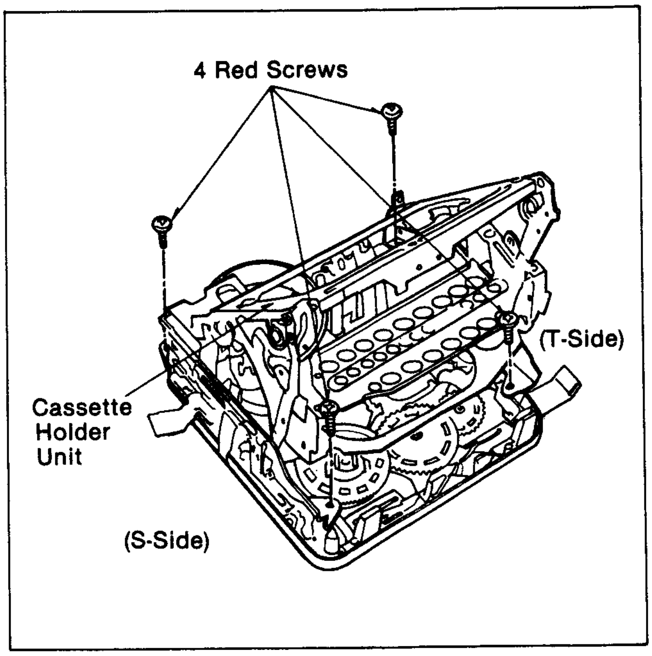

4 Red Screws
(T-Side)
Cassette Holder Unit
(S-Side)

Fig. M30

2-4. INTERCHANGEABILITY ADJUSTMENT

1. BACK TENSION ADJUSTMENT

* Equipment Required
Tension Meter
VHS−C Cassette Tape
Specification 18+3/−1.5g(16.5g∼21g)

(1) Play back (remove the cassette tape cover) tape.
(2) Set Tension Meter at the measuring point and read the value.
(3) If the value is out of specification, change the hooking position of Tension Spring.
(4) Install Cassette Holder Unit.

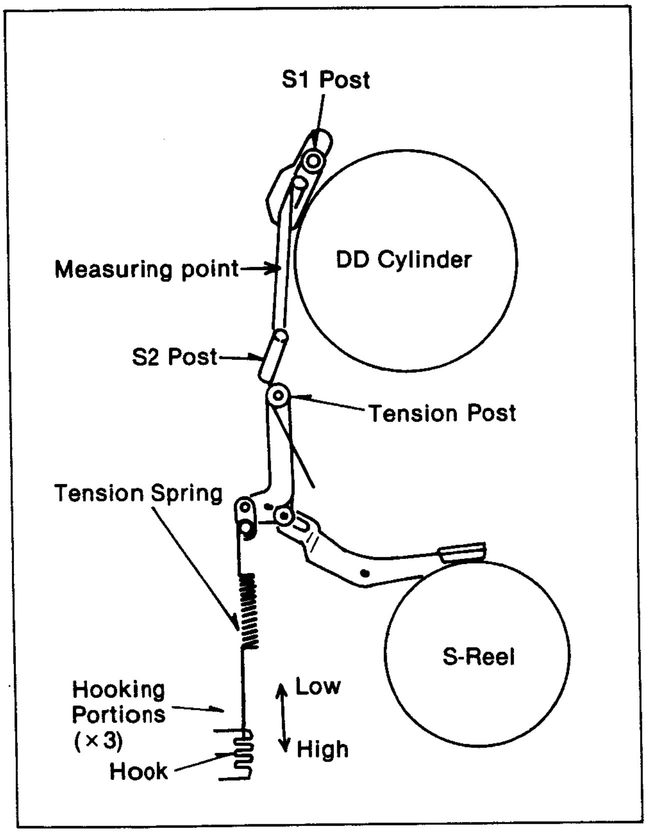

S1 Post
Measuring point
DD Cylinder
S2 Post
Tension Post
Tension Spring
S-Reel
Hooking Portions (×3)
Hook
Low
High

Fig. M31

2. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS AND A/C HEAD (PRELIMINARY ADJUSTMENT)

Confirmation of Tape Travel
(1) Playback a cassette tape (remove the cassette tape cover) and confirm that the tape travels without curling at upper and lower guides on posts S1,T1,T2 and T3.

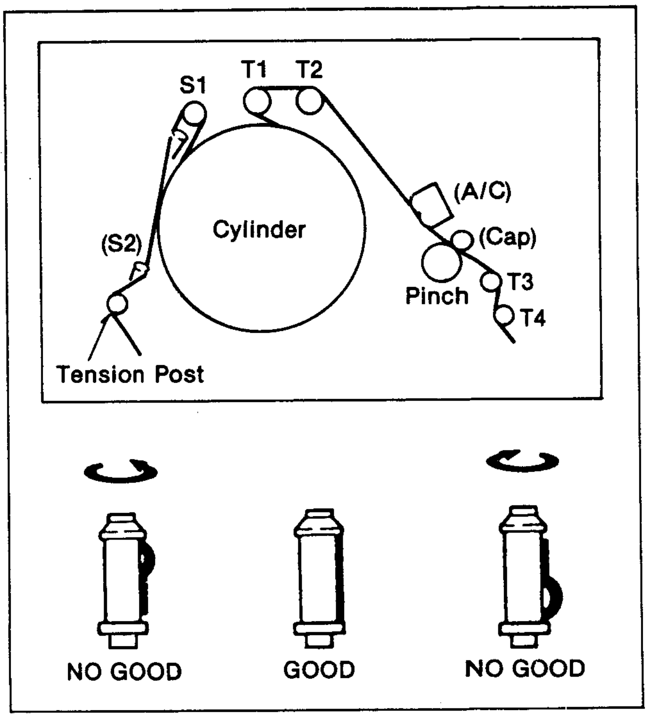

S1
T1
T2
(A/C)
Cylinder
(Cap)
(S2)
Pinch
T3
T4
Tension Post
NO GOOD
GOOD
NO GOOD

Fig. M32

(2) If curling is apparent, adjust the height of posts by turning the top of post With Hex Wrench.
(3) Looking at the lower edge of the control Head with the tape in motion, ensure that lower edge of the tape runs 0.25mm above the lower edge of control Head. If it doesn't, turn the A/C head height Adjustment Nut slightly in either direction as necessary to correct it.

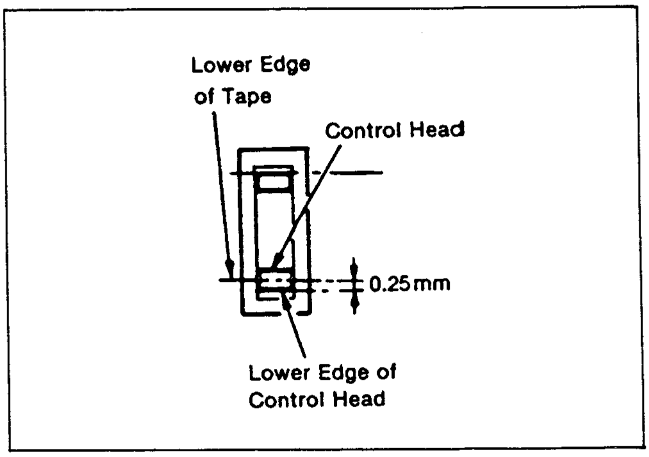

Lower Edge of Tape
Control Head
0.25mm
Lower Edge of Control Head

Fig. M33

3. TAPE INTERCHANEABILITY ADJUSTMENT

NOTE:
To perform these adjustments, make sure that the tracking control is set in the fixed position by Pressing both tracking Up/Down switches at the same time.

- * Equipment Required
  Dual Trace Oscilloscope
  Alignment tape (4822 397 30186)

[AZIMUTH ADJUSTMENT OF A/C HEAD]

(1) Connect the oscilloscope to Audio Line Output.
(2) Play back the Monoscope portion (6KHZ,MONO) of the Alignment tape.
(3) Adjust the Azimuth Adjustment screw on the A/C Head Unit so that output level is at a maximum.

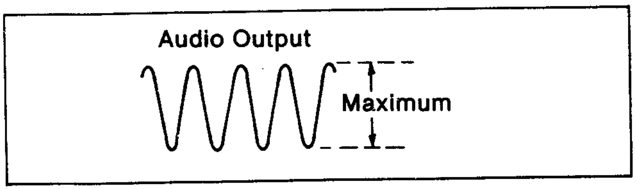

Audio Output
Maximum

Fig. M34

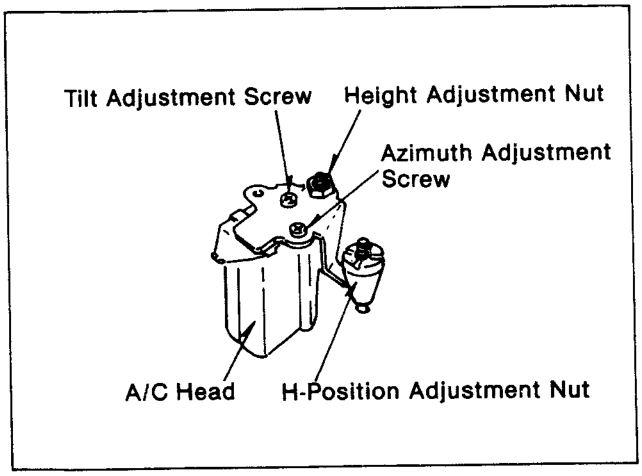

Tilt Adjustment Screw
Height Adjustment Nut
Azimuth Adjustment Screw
A/C Head
H-Position Adjustment Nut

Fig. M35

[HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD]

(1) Connect the oscilloscope to TP8002 or Pin 24 IC3001.
(2) Playback the monoscope portion of the alignment tape.
(3) Adjustment horizontal position by turning H–Position Adjustment Nut so that the envelope level is at a maximum.

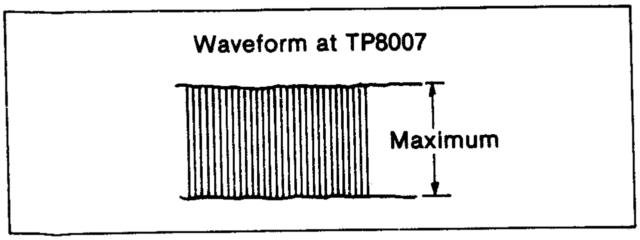

Waveform at TP8007
Maximum

Fig. M36

[CONFIRMATION/ADJUSTMENT OF ENVELOPE]

(1) Set the tracking control to the fixed position by pressing both tracking control Up/Down Switches at the same time, and connect the Oscilloscope to TP8002 or Pin 24 of IC3001.
(2) Play back the Monoscope portion of the Alignment Tape and adjust the height of S1 and T1 posts watching the scope display so that the RF envelope becomes as flat as possible.
(3) When the RF envelope is lacked at the beginning of the track, adjust height of S1 post.

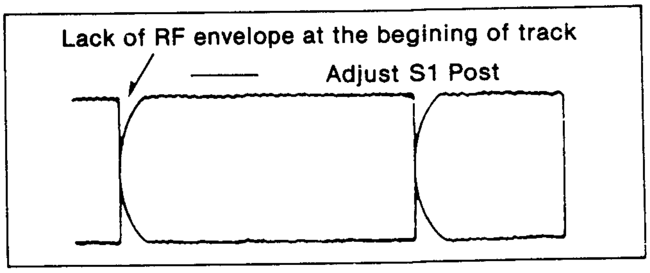

Lack of RF envelope at the begining of track
—— Adjust S1 Post

Fig. M37

(4) When the RF envelope is lacked at the end of the track, adjust height of T1 post.

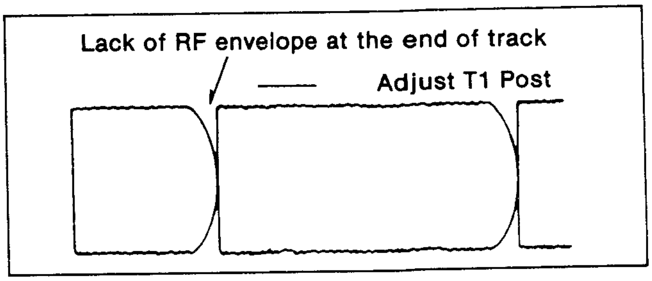

Lack of RF envelope at the end of track
—— Adjust T1 Post

Fig. M38

(5) When S2 and T1 Posts are adjusted properly, there is no lack of RF Envelope at the beginning or end of the track as shown below.

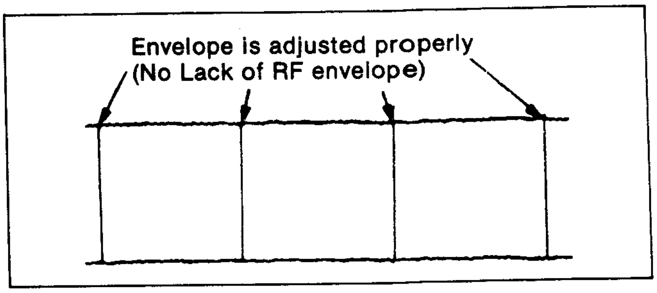
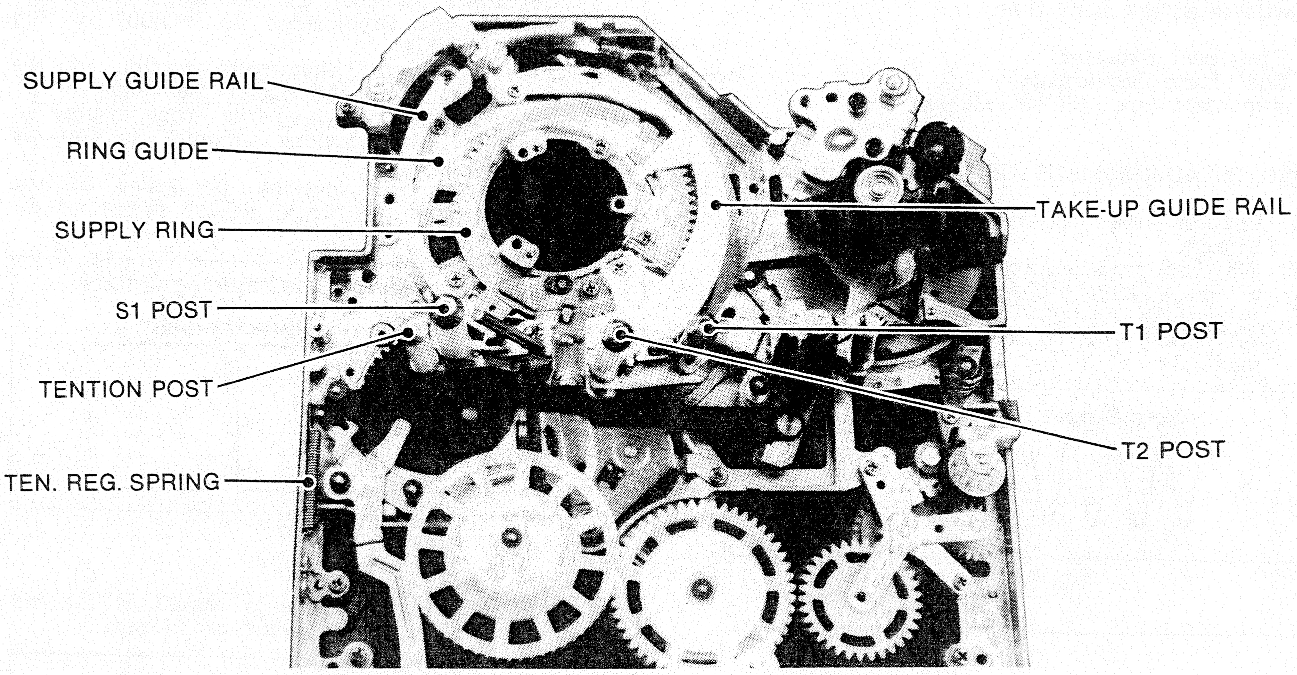

Envelope is adjusted properly
(No Lack of RF envelope)

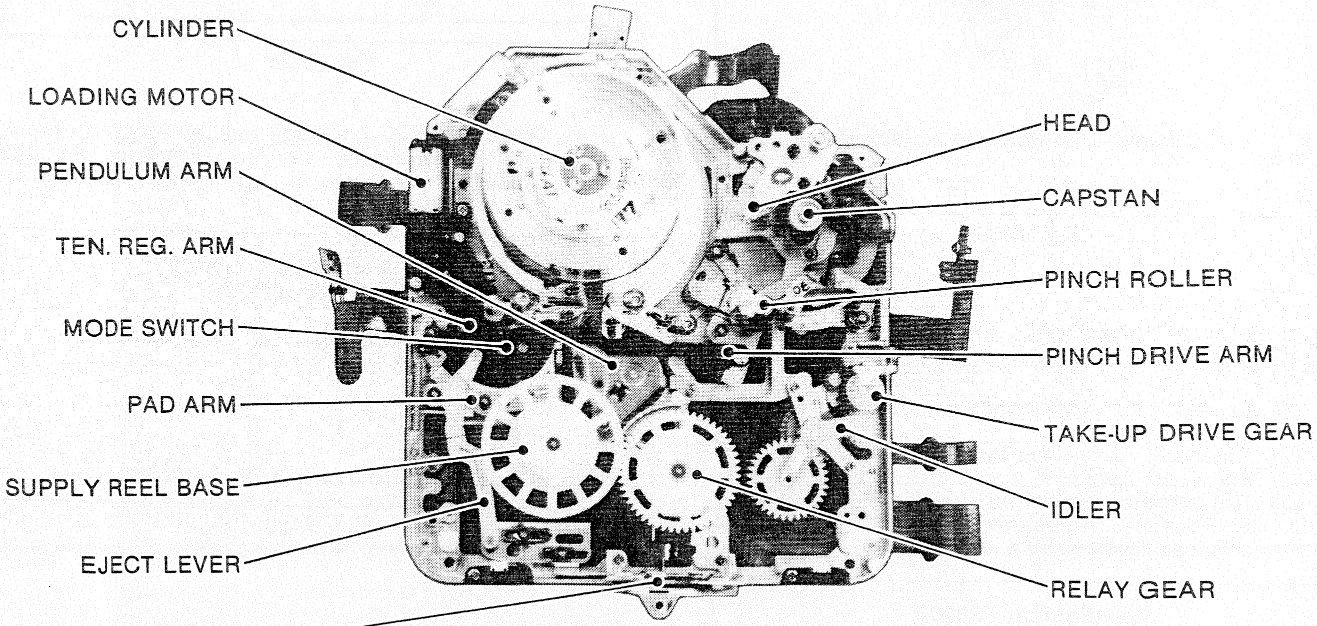
Fig. M39

1 Movement of Mechanism

1. Name of Mechanism


SUPPLY GUIDE RAIL
RING GUIDE
SUPPLY RING
S1 POST
TENTION POST
TEN. REG. SPRING
TAKE-UP GUIDE RAIL
T1 POST
T2 POST

∗RING T is located underneath of RING GUIDE


CYLINDER
LOADING MOTOR
PENDULUM ARM
TEN. REG. ARM
MODE SWITCH
PAD ARM
SUPPLY REEL BASE
EJECT LEVER
LOCK BASE
HEAD
CAPSTAN
PINCH ROLLER
PINCH DRIVE ARM
TAKE-UP DRIVE GEAR
IDLER
RELAY GEAR

2. Movement to Mechanism

1. Loading operation

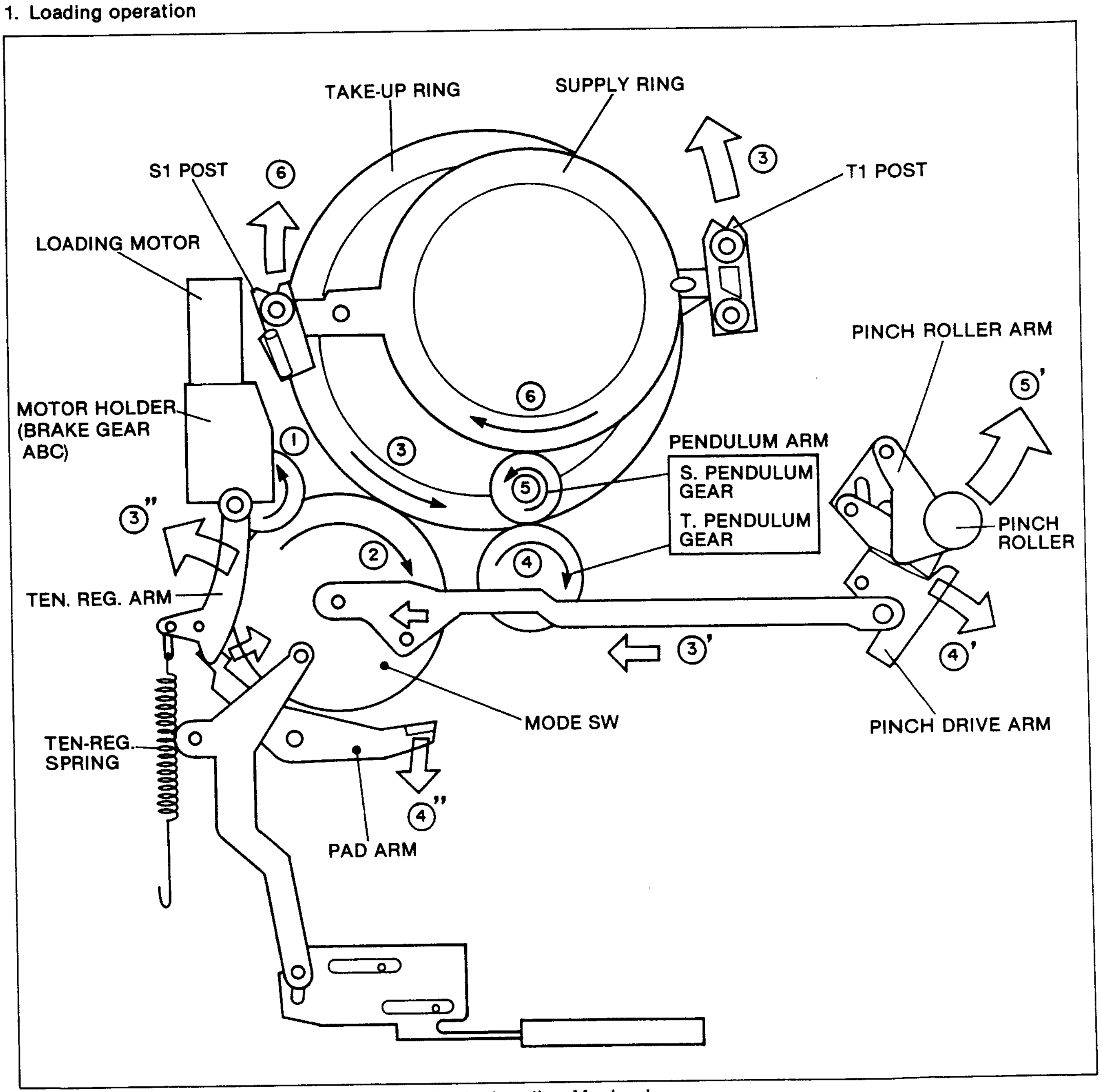

TAKE-UP RING
SUPPLY RING
S1 POST
⑥
③
T1 POST
LOADING MOTOR
PINCH ROLLER ARM
⑤'
⑥
MOTOR HOLDER
(BRAKE GEAR
ABC)
①
③
PENDULUM ARM
S. PENDULUM GEAR
T. PENDULUM GEAR
⑤
③"
PINCH
ROLLER
②
④
TEN. REG. ARM
③'
④'
MODE SW
PINCH DRIVE ARM
TEN-REG.
SPRING
④"
PAD ARM

Fig. 1 Loading Mechanism

- Motive power of loading motor is transferred by order of arrow mark.
  - Drive of loading post.
  - Heard Contact Pinchi Roller with capstan shaft. (Play Position)
  - Heard Contact Pad Arm with S. Reel table. (Play Position)

2. Eject operation

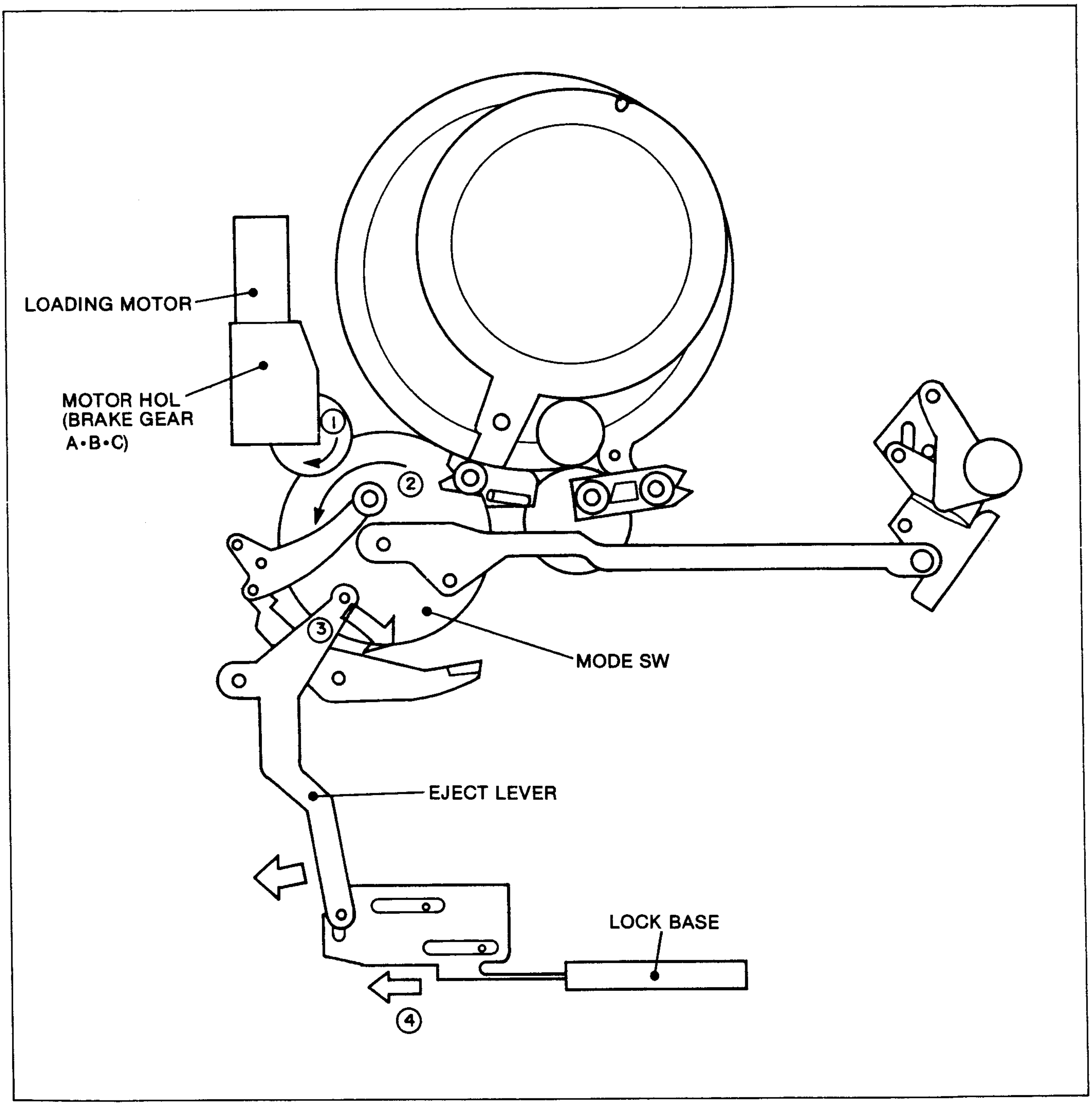

LOADING MOTOR
MOTOR HOL
(BRAKE GEAR
A•B•C)
①
②
③
④
MODE SW
EJECT LEVER
LOCK BASE

Fig. 2 Loading mechanism

- Motive power of loading motor is transferred by numerical order.
  After cassette up operation, those gears are moved to opposite of arrow's direction, to turn back stop1 condition.

3. Movement of Reel table

1. FF operation

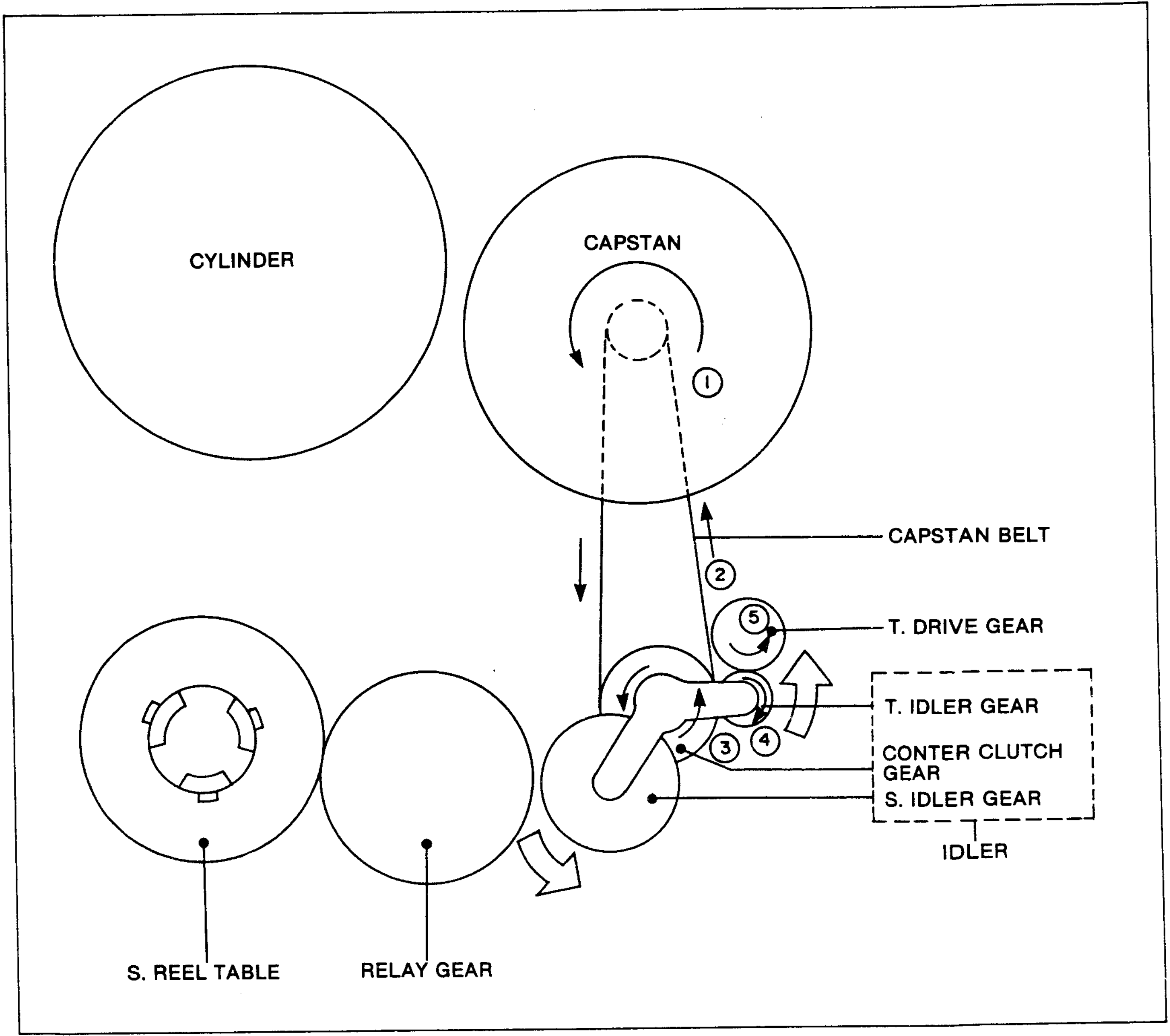

CYLINDER
CAPSTAN
①
CAPSTAN BELT
②
③
④
⑤
T. DRIVE GEAR
T. IDLER GEAR
CONTER CLUTCH GEAR
S. IDLER GEAR
IDLER
S. REEL TABLE
RELAY GEAR

Fig. 3 Take-Up side of Reel Drive

- Motive Power of Capstan motor is transferred to Idler (Center clutch Gear) through the capstan belt.
  At this time, position of Idler is decided by rotation of capstan motor.
  After that, Motive power is transferred by numerical order.
  Finaly, Take-up Reel is rotated by T. Drive Gear.
- Pad Arm is moved by Ten. Reg. Arm, and then contact with lower side of S. Reel table in order to apply back tension to tape.

2. REW operation

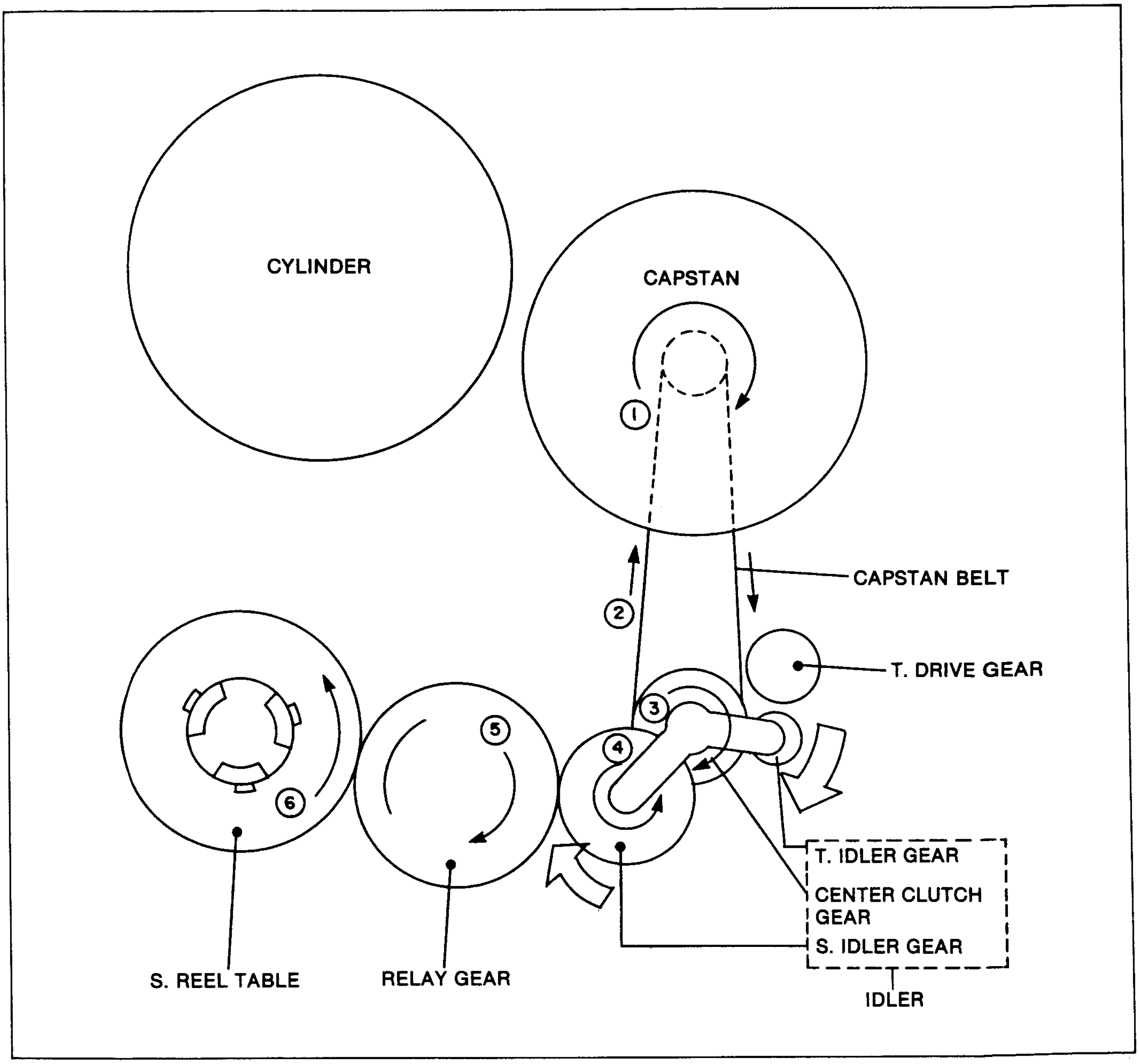

CYLINDER
CAPSTAN
①
②
CAPSTAN BELT
T. DRIVE GEAR
③
④
⑤
⑥
T. IDLER GEAR
CENTER CLUTCH GEAR
S. IDLER GEAR
IDLER
S. REEL TABLE
RELAY GEAR

Fig. 4 Supply side of Reel drive

- Motive power is transmited in numerical order.
- At this time, Idler is contacted to Relay Gear by capstan rotation.
- Also, back tention generate by contact Drive Gear T with REW Torgue spring (Including the Idler unit).

2 Alignment of Mechanism

Following mechanichal phase condition is impotant for mechanichal alignment.

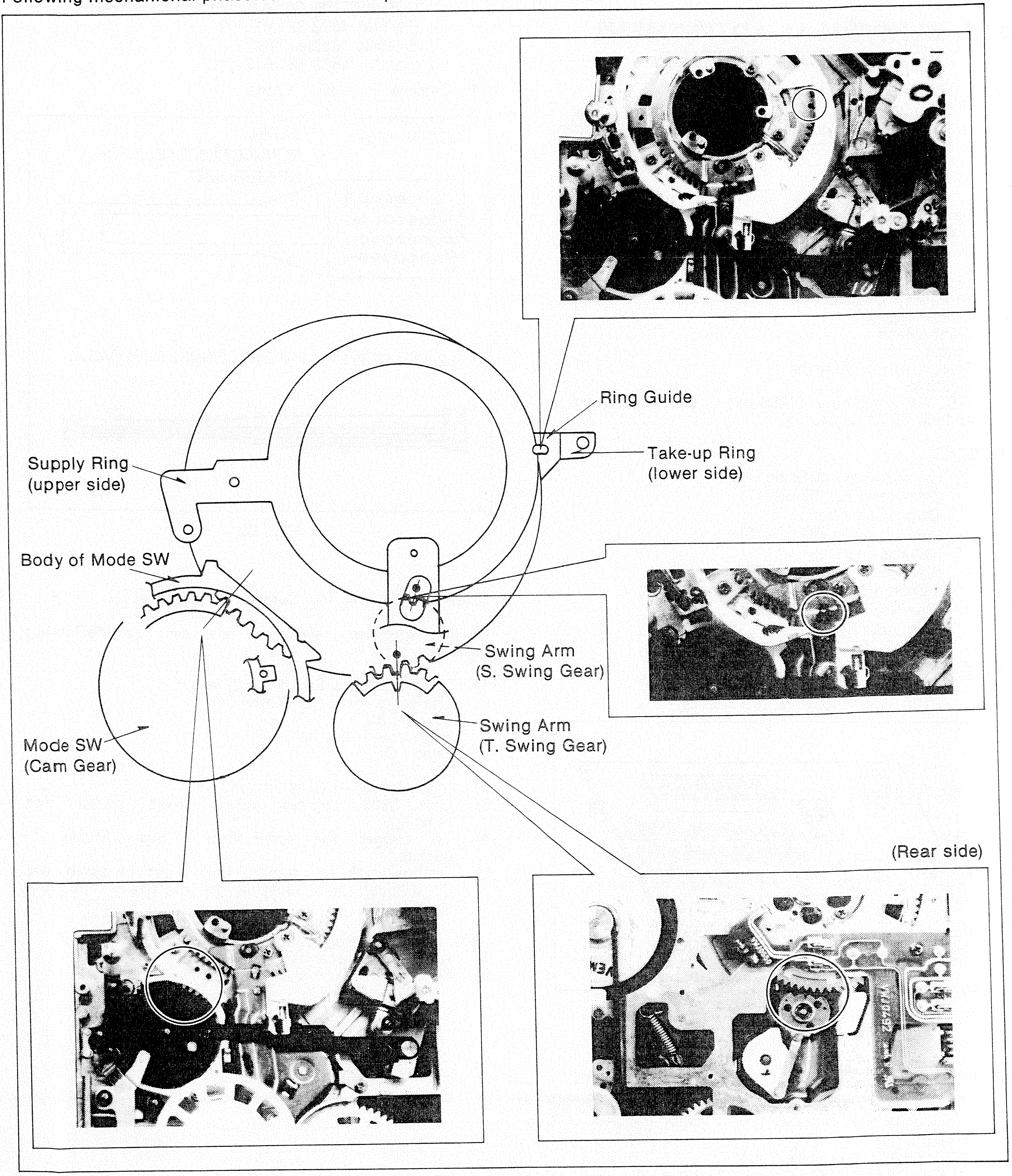

Ring Guide
Take-up Ring
(lower side)
Supply Ring
(upper side)
Body of Mode SW
Swing Arm
(S. Swing Gear)
Swing Arm
(T. Swing Gear)
Mode SW
(Cam Gear)
(Rear side)

Fig. 5 Mechanism Phase

2-5. ELECTRICAL ADJUSTMENT PROCEDURES

2-5-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section:

1) TEST EQUIPMENT

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter of VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot–candles (1400lux) on the chart surface 3200 degrees K.

2) TOOLS

- * Logarithmic Gray Scale Chart
  (Part No.:4822 397 30217)
- * Colour Chip Chart
  (Part No.:4822 397 30216)
- * Hunting Chart
  (Part No.:4822 397 30209)
- * J Chart & Ball Chart
  (Part No.:4822 397 30222)
- * Colour Bar Chart
  (Part No.:4822 397 30215)

10. Plastic Tip Driver
11. E.V.R. FIXTURE (Part No.:4822 321 61054)
    * ROM 5 (Part No.:4822 209 52265)

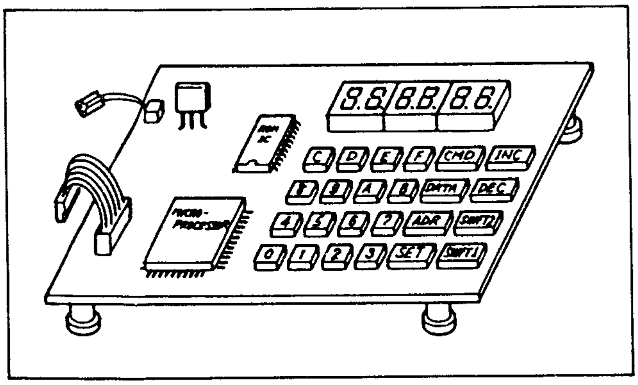


Fig. C1

12. Colour Temperature Conversion Filter
    - * C12 Filter (Part No. 4822 397 60152 or 4822 480 50474)
    - * C2 Filter (Part No. 4822 397 60153 or 4822 480 50476)
    - * Light Box
      (including Gray Scale Chart)
    - * EVR CONNECTION Cable 4822 321 61621
13. Extension Cable
    - * EVR CONNECTION Cable (5P)
      (Part No. 4822 321 61621)
    - * CONNECTION Cable for Measurement (24P)
      (Part No. 4822 321 61617)
    - * Extension Cable (24P)
      (Part No. 4822 321 61346)
14. Camera Extension Cables

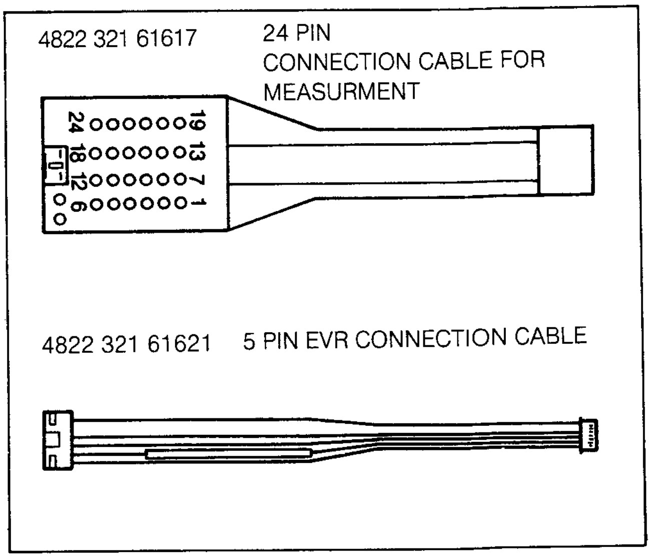


Fig. C2

(Standard Setting for Camera Adjustment)

Unless specified, switches are set to following positions.

1) White Balance Switch...White set
   (Refer to How to White Set)
   AF...Auto
   High speed shutter...OFF
   Fade...OFF
   EIS...OFF
2) Iris...Center(ALC condition)
3) Use 3200 degrees kelvin light source for lighting.
4) To trigger the oscilloscope, use Video output.
5) Service work for camera unit must be performed in a dust free location to maintain the lens cleanliness.

(How to set White Balance)
1) Aim the camera at white chart.
2) Push SHIFT 1 + 8 together.

(Description of Command)

Selecting the communication for the type of data exchange performed between EVR Fixture and camcorder.

Command	Communication	Contents
02	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Lower Digit)
12	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Upper Digit)
04	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Lower Digit)
14	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Upper Digit)
08	EVR Fixture → Micro Computer (RAM)	Data transmission of EVR Fixture to Micro computer (RAM).
18	EVR Fixture → Micro computer (RAM)	Data tranmission of EVR Fixture to Micro computer (RAM).
09	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).
19	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).

Fig. C3

(Error Indication)

If an error is occures while EVR is operating, EVR will display one of the error massages listed in Fig.C4 for 2 seconds and then return to the previous indication.

Error NO.	Contents of Error
1	Set the wrong command number
2	Set the wrong Address number
3	VD signal from camera is not coming.
4~6	Detect the error during communication
7	Writing error in the EEPROM of camera.
8	Communication error in the EEPROM of camera

Fig. C4

(Macro Operation)
The following operation is provided to transfer the data by one touch.

<table>
<tr><th>NO.</th><th>Buttom to be pushed</th><th>Operation</th></tr>
<tr><td>1</td><td>SHIFT 1 + 0</td><td>Making IRIS fully open.</td></tr>
<tr><td>2</td><td>SHIFT 1 + 1</td><td>Making IRIS fully close.</td></tr>
<tr><td>3</td><td>SHIFT 1 + 2</td><td>Making AGC Gain minimize.</td></tr>
<tr><td>4</td><td>SHIFT 1 + 3</td><td>Making AGC Gain maximize.</td></tr>
<tr><td>5</td><td>SHIFT 1 + 4</td><td>Fade on.</td></tr>
<tr><td>6</td><td>SHIFT 1 + 5</td><td>Fade off.</td></tr>
<tr><td>7</td><td>SHIFT 1 + 6</td><td>Not Used.</td></tr>
<tr><td>8</td><td>SHIFT 1 + 7</td><td>Switching the Auto/manual Focus.
(Press the SHIFT 1 + 7 repeatedly to select the desired focus mode, EVR indicate the mode of Focus at the address digits a moment, detail as follows.)
<table>
<tr><th>LED INDICATION</th><th>MODE</th></tr>
<tr><td>0</td><td>Manual Focus mode.</td></tr>
<tr><td>1</td><td>Auto Focus mode.</td></tr>
</table></td></tr>
<tr><td>9</td><td>SHIFT 1 + 8</td><td>White set</td></tr>
<tr><td>10</td><td>SHIFT 1 + 9</td><td>Making Iris manual condition.</td></tr>
<tr><td>11</td><td>SHIFT 1 + A</td><td>Making Iris Auto condition.</td></tr>
<tr><td>12</td><td>SHIFT 1 + B</td><td>Making AGC on.</td></tr>
<tr><td>13</td><td>SHIFT 2 + 2</td><td>Writing the Average data and Fixed data to EEPROM.</td></tr>
<tr><td>14</td><td>SHIFT 2 + 3</td><td>Automatic Calculating the Colour Reproduction.
Automatic Calculating for Auto White Balance.</td></tr>
<tr><td>15</td><td>SHIFT 2 + 4</td><td>NOT USED</td></tr>
<tr><td>16</td><td>SHIFT 2 + 5</td><td>Zoom come to “WIDE” position.</td></tr>
<tr><td>17</td><td>SHIFT 2 + 6</td><td>Zoom stop.</td></tr>
<tr><td>18</td><td>SHIFT 2 + 7</td><td>Zoom come to “TELE” position.</td></tr>
<tr><td>19</td><td>SHIFT 2 + 8</td><td>Zoom stop.</td></tr>
<tr><td>20</td><td>SHIFT 2 + 9</td><td>Automatic Calculating for Manual Iris setting.</td></tr>
</table>

Fig. C5

PREPARATION

1) Remove both side cases (R) and (L) referring to disassembly method.
2) Connect the E.V.R. FIXTURE and measuring equipment as shown in Fig.C6.

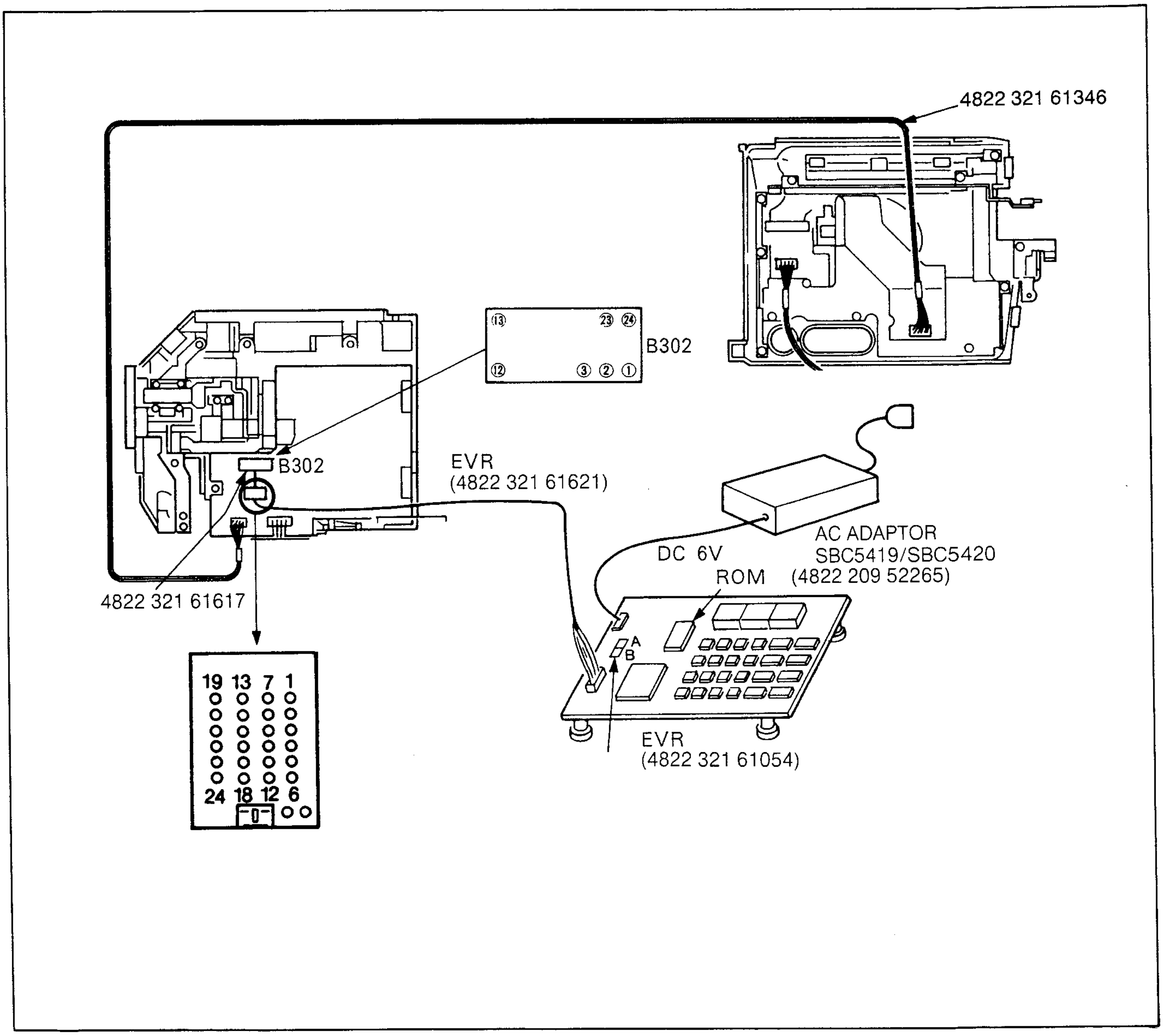
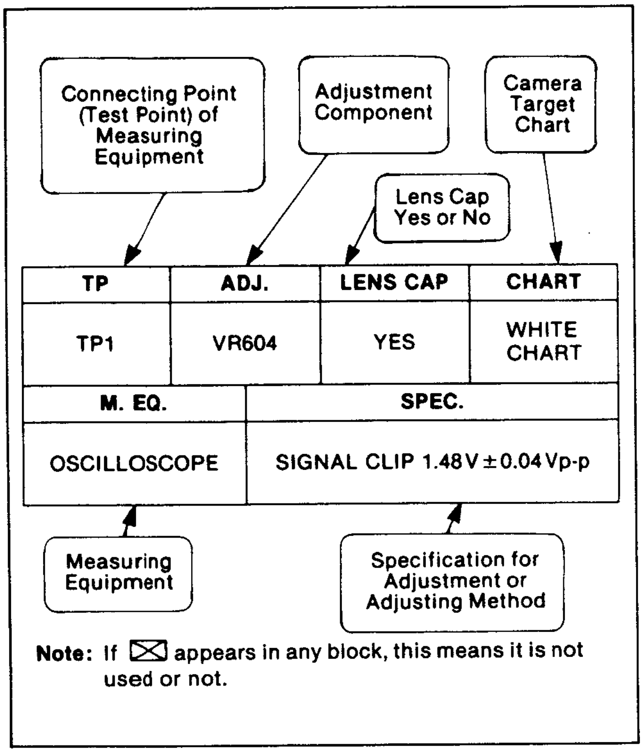

4822 321 61346
⑬ ㉓ ㉔
⑫ ③ ② ①
B302
B302
EVR
(4822 321 61621)
AC ADAPTOR
SBC5419/SBC5420
(4822 209 52265)
DC 6V
ROM
4822 321 61617
A
B
19 13 7 1
24 18 12 6
EVR
(4822 321 61054)

Fig. C6

1) Set the mode selector on the E.V.R. Fixture to "A" side. (Refer to Fig.C27)
2) Turn on the power SW of the camcorder.
3) Turn on the power SW of E.V.R. fixture. The LED Display on E.V.R. Fixture will indicate 08,80,00. If this seqence is not indicated, push the Reset button and/or check the cable connections between EVR and CAMERA.

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF CONVENTIONAL VR)


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
TP
ADJ.
LENS CAP
CHART
TP1
VR604
YES
WHITE CHART
M. EQ.
SPEC.
OSCILLOSCOPE
SIGNAL CLIP 1.48V±0.04Vp-p
Measuring Equipment
Specification for Adjustment or Adjusting Method

Note: If ☒ appears in any block, this means it is not used or not.

Fig. C7

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF E.V.R.)

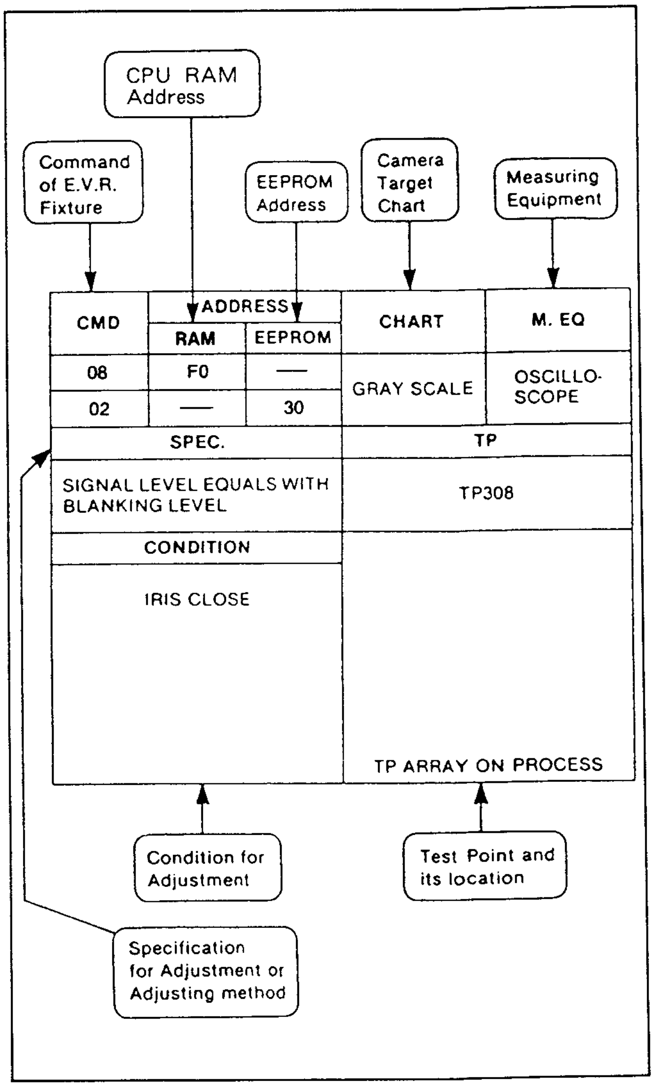

CPU RAM Address
Command of E.V.R. Fixture
EEPROM Address
Camera Target Chart
Measuring Equipment
CMD
ADDRESS
RAM
EEPROM
CHART
M. EQ
08
F0
—
02
—
30
GRAY SCALE
OSCILLO-SCOPE
SPEC.
TP
SIGNAL LEVEL EQUALS WITH BLANKING LEVEL
TP308
CONDITION
IRIS CLOSE
TP ARRAY ON PROCESS
Condition for Adjustment
Test Point and its location
Specification for Adjustment or Adjusting method

Fig. C8

1. DATA WRITING

When EEPROM is replaced, all item needs re-adjustment.

But If 4822 209 52265 (New ROM) is installed to the EVR Fixture (4822 321 61054), when the pushing SHIFT 2 snd "2" key together, Average Data is written in to EEPROM Automatically.

		UPPER							
LOVER		0	1	2	3	4	5	6	7
0	H DIGIT	B-Y GC 6000 3B	B-Y MAT 6000 87	B-Y WB 6000 56	B-Y limit 6000 2B	B-hili 6000 2E	BACKUP 1 72	vap-cl D0	cnt lapt 25
	L DIGIT	R-Y GC 6000 7A	R-Y MAT 6000 59	R-Y WB 6000 40	R-Y limit 6000 2B	R-hili 6000 4C	BACKUP 1 9E	vap-core 45	g lap 83
1	H DIGIT	B-Y GC 5100 3B	B-Y MAT 5100 8C	B-Y WB 5100 5E	B-Y limit 5100 2E	B-hili 5100 6A	BACKUP 2 80	Hap-cor 80	cnt ck B0
	L DIGIT	R-Y GC 5100 5F	R-Y MAT 5100 55	R-Y WB 5100 4A	R-Y limit 5100 2E	R-hili 5100 60	BACKUP 2 54	hi-l, ap FF	cnt ct B0
2	H DIGIT	B-Y GC 4500 38	B-Y MAT 4500 7D	R-Y WB 4500 7B	B-Y limit 4500 6A	B-hili 4500 8A	BACKUP 3 8B	cnt2-up 06	cnt lapk 25
	L DIGIT	R-Y GC 4500 50	R-Y MAT 4500 60	R-Y WB 4500 47	R-Y limit 4500 3B	R-hili 4500 4D	BACKUP 3 56	cnt2-dn D0	g lapk F8
3	H DIGIT	B-Y GC 3600 42	B-Y MAT 3600 78	B-Y WB 3600 8D	B-Y limit 3600 71	B-hili 3600 A1	BACKUP 4 F0	H+gain 10	NOT USED
	L DIGIT	R-Y GC 3600 5C	R-Y MAT 3600 5C	R-Y WB 3600 58	R-Y limit 3600 4D	R-hili 3600 67	BACKUP 4 FF	Vap-gain 0D	NOT USED
4	H DIGIT	B-Y GC 3300 5C	B-Y MAT 3300 85	B-Y WB 3300 8C	C-FLAG TH 66	CSPDm 1E	agclim 2 A0	c-g-ap 20	NOT USED
	L DIGIT	R-Y GC 3300 3D	R-Y MAT 3300 53	R-Y WB 3300 61	CHSPD 08	CSPDs 32	EIS ON/OFF 83	c-g-sw 55	NOT USED
5	H DIGIT	B-Y GC 3100 5C	B-Y MAT 3100 85	B-Y WB 3100 94	B-limit 3100 7D	B-hili 3100 B6	ped-h 04	H-st/p 30	NOT USED
	L DIGIT	R-Y GC 3100 3D	R-Y MAT 3100 5B	R-Y WB 3100 6B	R-limit 3100 67	R-hili 3100 81	ped-1H-ed/p 04	H-e-d 40	NOT USED
6	H DIGIT	B-Y GC 2800 4F	B-Y MAT 2800 85	B-Y WB 2800 A4	B-limit 2800 7D	B-hili 2800 B6	ped-st 50	V-st/b 30	NOT USED
	L DIGIT	R-Y GC 2800 47	R-Y MAT 2800 5B	R-Y WB 2800 8F	R-limit 2800 81	R-hili 2800 B9	ped-end 90	V-ed/p 18	NOT USED
7	H DIGIT	STH FF	FF	Bwb Llimit 56	B-limit SKY 00	B-hili SKY 2B	NOT USED	H-st/b 4C	NOT USED
	L DIGIT	FF	FF	Rwb Llimit 42	R-limit SKY 28	R-hili SKY 4C	flag3 FD	sw 3E	NOT USED
8	H DIGIT	Hap gain 10	Hap-core 80	Bwb Hlimit FF	B-limit TREE 6A	B-hili TREE A1	flag7 FF	Y-base AC	NOT USED
	L DIGIT	Uap gain 10	FF	Rwb Hlimit FF	R-limit TREE 28	R-hili TREE 3B	flag8 8F	Vap-core 05	NOT USED
9	H DIGIT	Houwa-U D0	HAP-NO 3C	B-Y WB 4900 5E	BWBZ B 00	BWBZ C 00	Tree BK 03	cntlap 77	NOT USED
	L DIGIT	Houwa-L B0	PEAKLPF 00	R-Y WB 4900 4A	RWBZ B 00	RWBZ C 00	P-WAITE A0	g-lap DC	NOT USED
A	H DIGIT	palflag 41	cls4 31	DSP Vcr 03	U puls 18	Baxish Th 00	st-alcp 05	D-Aagc 50	NOT USED
	L DIGIT	haloth 17	cls8 71	NOT USED	d puls 98	Baxish Th 4D	st-alcn 05	cntc B0	NOT USED
B	H DIGIT	B in 10	VSTART 13	TH 1 55	TH 3 6F	PALBR 00	open g 1 24	Ychk h A0	NOT USED
	L DIGIT	R in 10	ab set 93	TH 2 22	TH 4 10	LOOPTH 02	open g 2 24	Ychk 1 28	NOT USED
C	H DIGIT	Outb1 9F	ina1 F3	OPS 4 31	KOTEI A 20	OPEN 1 8F	OPEN 3 BF	Yclpv 1 65	NOT USED
	L DIGIT	Outb2 7B	ina2 E6	ST 77	KOTEI B 20	OPEN 2 A7	OPEN G 3 24	darklv 1 00	NOT USED
D	H DIGIT	Outb3 5C	ina3 CD	Seki A0	KOTEI C 00	CLOSE 1 68	CLOSE 3 48	BACK UP 1C	NOT USED
	L DIGIT	Outb4 4F	ina4 B3	AGC lim B0	KOTEI D 10	CLOSE 2 58	CLOSE G 3 44	BACK UP 3F	NOT USED
E	H DIGIT	Outb0 0B	close 00	SW-set 83	keisha 03	ag cnt1 3F	CORE 03	NOT USED	NOT USED
	L DIGIT	T-gain 24	open 00	MIX 03	AG-CENTER 9F	f cnd 48	CLOSE G2 64	NOT USED	NOT USED
F	H DIGIT	A/D IN 7F	AF-ap C7	OR bias 3D	R-YKB 28	LOW CLIP 7F	OPS8 71	clpmax F8	NOT USED
	L DIGIT	AF-Vn 5B	AF-AMP C7	PWM-B BD	Y-GAIN 19	B-YKB 4F	CLOSE G3 84	NOT USED	NOT USED

Fig. C9 Address map of all Average data

2. VTR CARRIE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	R:B8 B:BB	——		VECTOR-SCOPE
12, 02	——	R−Y:3F (L) B−Y:4F (H)		

SPEC.	TP
CENTRE OF ECTORSCOPE	VIDEO OUT

Purpose:
Set chroma signal black and white level.

Symptom of Misadjustment:
With a large shift, color is added to Black and white areas in the picture.

Note:
Refer to preparation for connection of EVR.

1. Aim the camera at the white chart and push "SHIFT 1 + 8" keys.
2. Connect the vectorscope to video out.
3. Place the unit to "IRIS CLOSE" by pushing "SHIFT 1" + "1" keys together.
4. Push "CMD", "1" and "8" keys.
5. Push "ADR", "B" and "8" keys.
6. Push "INC" or "DEC" so that vector comes to centre as shown in Fig.C10.
7. Push "CMD", "1" and "2" keys.
8. Push "ADR", "3" and "F" keys.
9. Push "SET" key to write its adjusted data in EEPROM.
10. Change "CMD" to "18" and "ADR" to "BB".
11. Push "INC" or "DEC" so that vector comes to conter as shown in Fig.C10.
12. Push "CMD", "0" and "2" keys.
13. Push "ADR", "4" and "F" keys.
14. Push "SET" key.
15. Push "SHIFT 1" + "A".

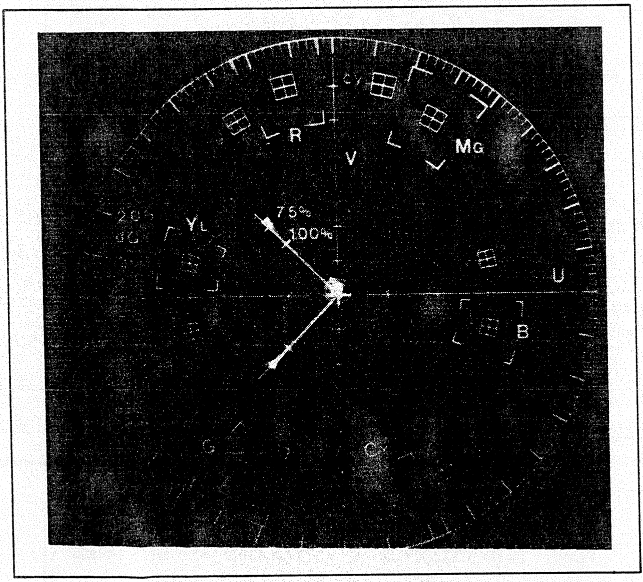
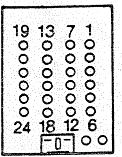


Fig. C10

3. HALL AMP ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B5	——		D.V.M
	VR701	——		
02	——	IF		

SPEC.	TP
VOLTAGE B302-9 (4822 321 61617-PIN 9)= VOLTAGE B302-18 (4822 321 61617-PIN 18) VOLTAGE B302-9 (4822 321 61617-PIN 9)= VOLTAGE B302-7 (4822 321 61617-PIN 7)	B302-9 (PIN Number 9 of 4822 321 61617) 4822 321 61617 

Purpose:
Hall Amp Adjustment

Symptom of Misadjustment:
Hunting occurs or focus stops.

1. Connect the 4822 321 61617 to B302 and then connect the 4822 321 61621 to 822 321 61617 and EVR.
2. Connect the jumper wire between B302−11 (4822 321 61617-PIN 11) and GND for Making IRIS close (Do not use EVR for IRIS close).
3. Push (CMD),(1) and (8).
4. Push (ADR),(B) and (5).
5. Push (INC) or (DEC) key so that voltage at B302−9 (4822 321 61617-PIN 9) become Vref 1 +− 10mV. (Vref 1 = B302−18 (4822 321 61617-PIN 18)
6. Push (CMD),(0) and (2).
7. Push (ADR),(1) and (F).
8. Push (SET).
9. Connect the jumper wire between B302−11 (4822 321 61617-PIN 11) and B302-14 (4822 321 61617-PIN 14) for Making IRIS open.
10. Adjust the VR701 so that Voltage at B302−9 (4822 321 61617-PIN 9) becomes Vref 3 +− 30mV. (Vref 3 = B302−7 (4822 321 61617-PIN 7)

4. PLL FREQUENCY ADJUSTMENT

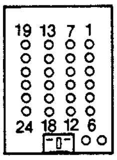
TP	ADJ.	LENS CAP	CHART
CL203	C223		

M. EQ.	SPEC.
FREQUENCY COUNTER	12.875000MHz+−100Hz

Purpose:
CCD Drive pulse adjustment

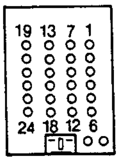
Symptom of Misadjustment:
Picture sync misoperation.

5. PWM ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B7	—		D.V.M
02	—	2F (L)		
SPEC.			TP	
			B302-9 (4822 321 61617-PIN 9) 4822 321 61617 	

1. Set the IRIS to "OPEN"(SHIFT 1 + 0).
2. Connect the D.V.M. to B302−9 (4822 321 61617-PIN 9)
3. Push "CMD" key and then push "1" and "8". (Setting Command 18)
4. Push "ADR" key and then push "B" and "7". (Setting Address B7)
5. Push "INC" or "DEC" key so that Voltage level at B302−9 (4822 321 61617-PIN 9) becomes Vref 1 +− 50mV.
   (Vref 1 = Voltage at B302−7 (4822 321 61617-PIN 7) 500mV)
6. Set the IRIS to "CLOSE".(SHIFT 1 + 1)
7. Set the IRIS to "OPEN". (SHIFT 1 + 0)
8. Push "CMD" key, "1" and "8" keys.
9. Push "ADR" key, "B" and "7" keys.
10. Push "INC" or "DEC" key so that Voltage level at B302−9 (4822 321 61617-PIN 9) becomes. Vref 2 +− 20mV. (Vref 2 = B302−7 (4822 321 61617-PIN 7)−140mV)
11. Push "CMD" key, "0" and "2" keys.
12. Push "ADR" key, "2" and "F" keys.
13. Push "SET" key.
14. **Push "SHIFT 1 + A".**

6. ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	T: B4 W: B3	—	object: 1 m (Hunting chart)	DIGITAL VOLTMETER
12	—	T: 1F (H)		
02	—	W: 0F (L)		
SPEC.			TP	
To be calculated			B302-8 (4822 321 61617-8) B302-17 (4822 321 61617-17) 4822 321 61617 	
CONDITION				
• Focus Manual (SHIFT 1+7)				

Note:
1) Unless you replaced zoom Encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment. (Because this adjustment is critical).
2) Regarding the connection of EVR, refer to preparation.(Fig.C6)

ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

Note:
1) Unless you replaced zoom encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment.
2) Regarding the connection of EVR, refer to preparation.

(Precise Adjustment for Zoom Encoder)

1. Check the voltage on B302−8 (4822 321 61617-PIN 8) and B302−17 (4822 321 61617-PIN 17) before replaced lens unit.

   For example:
   B302−8 (4822 321 61617-PIN 8) : 3.652V
   B302−17 (4822 321 61617-PIN 17) : 1.456V

2. Note the potential difference between B302−8 (4822 321 61617-PIN 8) and B302-17 (4822 321 61617-PIN 17)

   For example:
   3.652 − 1.456 = 2.196V

3. Turn the power sw off.
4. Replace lens unit.
5. Loosen 2 screws of Focus encoder C.B.A. and move C.B.A. to center position as shown in Fig.C11. Then tighten 2 screws.

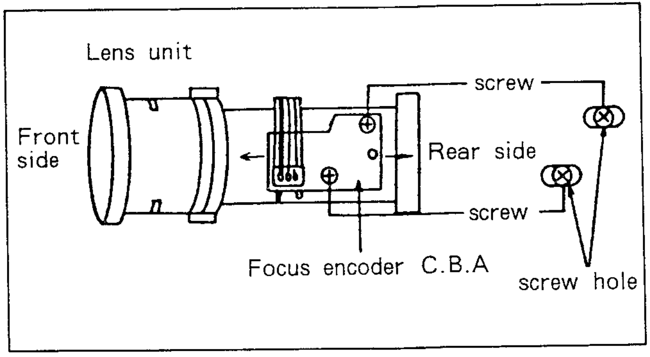


Fig. C11

6. Turn the power sw on.
7. Set the Focus to Manual focus. (Push SHIFT 1 + 7)
8. Set the Zoom to fully TELE side.(Push "SHIFT2+7")
9. Aim the unit at Hunting chart from 1m
10. Press the Focus (−) button until movement stops.
11. Push (CMD),(1),(8)
12. Push (ADR),(B),(4)
13. Push (INC) or (DEC) until the focus is in the best position.

* NOTE: How to check the best focus position.
(1).Focus does not change when change the data for address of "B4".
So focus will be change when the WIDE button pushed after change the data of address "B4".

(2).When the change the data for address of "B4", please push WIDE button little bit and then push the TELE button for confirm the focus at fully tele side. (Push "SHIFT2+5")

14. When best focus position is found, store the data to EEPROM as follows.
    * Push (CMD),(1),(2)
    * Push (ADR),(1),(F)
    * Push (SET)

15. Check the Voltage at B302−17 (4822 321 61617-PIN 17). Subtact the Voltage which is noted step 2 from step 15.

For example:
If the Voltage at B302−8 (4822 321 61617-PIN 8) is 3.662V
3.662 − 2.196 = 1.446V(example).

Set the Voltage at B302−17 (4822 321 61617-PIN 17) to 1.446V with EVR as follows.

* Push (CMD),(1),(8)
* Push (ADR),(B),(3)
* Push (INC) or (DEC) so that Voltage at B302−17 (4822 321 61617-PIN 17) becomes 1.446V.

16. Store the data to EEPROM as follows.
* Push (CMD),(0),(2)
* Push (ADR),(0),(F)
* Push (SET)

17. Confirm the focus when zooming to wide side.

① Focus is good−go to step 18.

② Focus is no good around full WIDE side.

Adjust the wide side voltage as follows.

* Push (CMD),(1),(8)
* Push (ADR),(B),(3)
* Push (INC) or (DEC) until the focus is in the best position.

NOTE: How to check the best focus position.

(1). Focus does not change when change the data for address of "B3".
So focus will be change when TELE button pushed,after change the data for address of "B3".

(2).When change the data for address of "B3", Please push the TELE button little bit and then push the WIDE button for confirm the focus at fully wide side.

Store the data to EEPROM as follows.
* Push (CMD),(0),(2)
* Push (ADR),(0),(F)
* Push (SET)

Confirm the focus (from TELE to WIDE)

If focus is still no good, return to step 5 and change the focus encoder position as follows.

How to change the focus encoder position.

Adjust the focus by (+),(−) button,

* If (−) focus button is pushed and focus become good, move focus encoder to front side.

* If (+) focus button is pushed and focus become good, move focus encoder to rear side.

Then return to step 6.

③ :Focus is no good between TELE to WIDE.

Stop the Zoom where focus is no good. And push focus (+) or (−) button.

* If (−) focus button is pushed and focus become good, move focus encoder to front side.
Then return to step 6.

* If (+) focus button is pushed and focus become good, move focus encoder to rear side.
Then return to step 6.

18. Confirm back focus with far object.
If back focus is no good, repeat from step 5.

7. V−SUB ADJUSTMENT (NORMAL)

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP

M. EQ.	SPEC.
MONITOR TV	NO BLOOMING

(1) Zoom all the way in (full tele position or full wide position) and aim the camera at the Halogen Lamp as shown in Fig.C12.

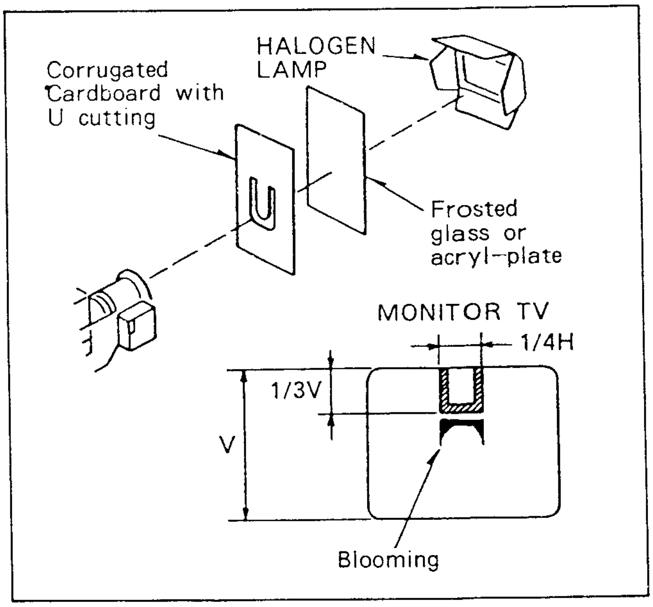

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl−plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C12

(2) Set the High Speed Shutter SW to "OFF" position.
(3) Diffuse the incoming light using frosted glass or acryl plate. Place the cardboard which has been cut to "U" shape as shown in Fig.C12 between the diffusion plate and the camera.

(4) Adjust VR203 so that blooming just disappears. (If blooming does not disappear completely, adjust for least blooming)

(5) Confirm that the monitored picture does not contain Blooming in both High Speed Shutter "ON" and "OFF" modes even if the camera moves as shown in Fig.C13.

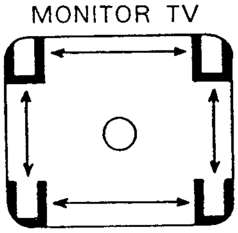
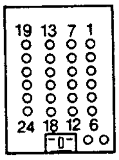


Fig. C13

8. PEDESTAL LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	BA	—		OSCILLO-SCOPE
12	—	4F		
SPEC.			TP	
A=0mV±10mV			B302-6 (4822 321 61617-PIN 6) 4822 321 61617 	

1.Push "SHIFT 1 + 9".
2. Cover the lens.
   Set the AGC MAX condition. (by pushing "SHIFT 1" + 3 together.)
3. Connect the oscilloscope to B303−6 (4822 321 61617-PIN 6) .
4. Push "CMD" key, "1" key and "8" key of EVR.
5. Push "ADR" key, "B" key and "A" key.
6. Push "INC" key or "DEC" key so that "A" level becomes 0mV.
7. Push "CMD", "1" and "2" keys.
8. Push "ADR", "4" and "F" keys.
9. Push "SET" key.
10. Reset the AGC MAX condition.(SHIFT 1 + B)
11. Push "SHIFT 1 + A" key

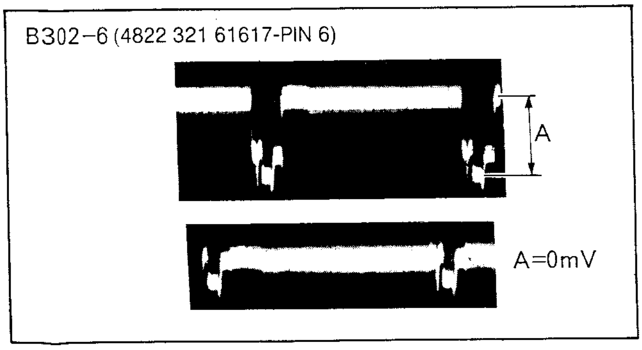
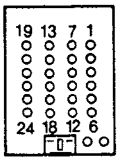


Fig. C14

9. AGC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	BC	—	GRAY SCALE CHART	OSCILLO-SCOPE
12	—	6A		
SPEC.			TP	
250mV±20mV			B302-5 (4822 321 61617-PIN 5) B302-20 (4822 321 61617-PIN 20) 4822 321 61617 	

Purpose:
Set standard signal gain.

Symptom of Misadjustment:

The picture is sometimes too dark too bright.

< Preset for AGC Adjustment >

1. Set the IRIS to MANUAL (SHIFT 1 + 9)
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B302−5 (VFK0734W−5).
4. Push (CMD),(1),(8)
5. Push (ADR),(D),(E)
6. Push (INC) or (DEC) so that signal level at B302−5(VFK0734W−PIN5) becomes 250+−10mV.

< AGC Adjustment >

7. Push (CMD),(1),(8)
8. Push (ADR),(B),(C)
9. Push (INC) or (DEC) so that signal level at B302−20 (4822 321 61617-PIN 20) becomes 250+−10mV.
10. Push (CMD),(1),(2)
11. Push (ADR),(6),(A)
12. Push (SET)

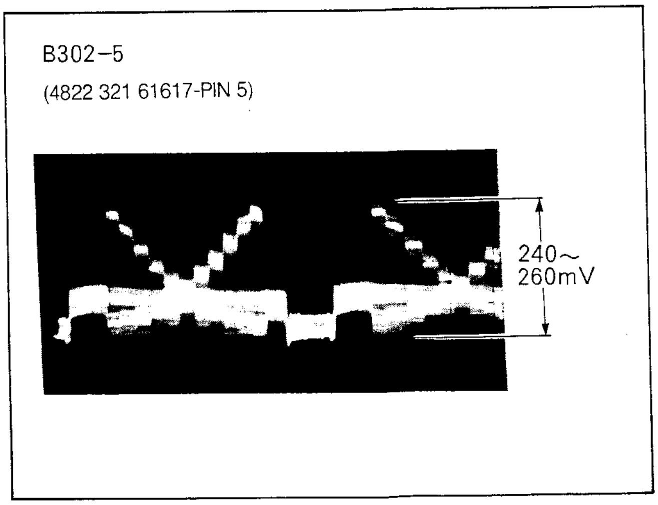


Fig. C15-1

B302–20 (4822 321 61617-PIN 20)

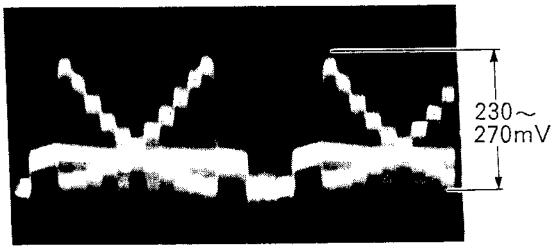
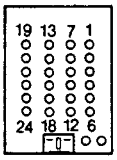


Fig. C15-2

10. A/D INPUT LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B1	—	GRAY SCALE CHART	OSCILLO-SCOPE
12	—	0F		
SPEC.			TP	
1.2V±40mV			B302-5 (4822 321 61617-PIN 5) B302-6 (4822 321 61617-PIN 6)  	

Purpose:
A/D converter input Level adjustment.

Symptom of Misadjustment:
The picture becomes too dark or too bright.

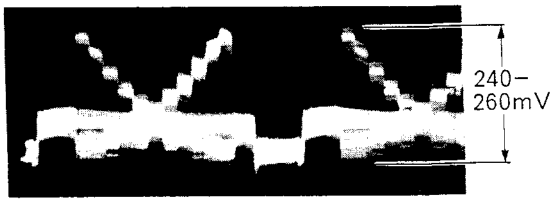
< Preset for A/D Input Level Adjustment >

1. Set the IRIS to MANUAL (SHIFT 1 + 9).
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302–5(VFK0734W–PIN5).
4. Push (CMD),(1),(8)
5. Push (ADR),(D),(E)
6. Push (INC) or (DEC) so that signal level at B302–20 (4822 321 61617-PIN 20) becomes 250+–10mV.

< A/D INPUT LEVEL ADJUSTMENT >

7. Push (CMD),(1),(8)
8. Push (ADR),(B),(1)
9. Push (INC) or (DEC) so that signal level at B302–6 (4822 321 61617-PIN 6) becomes 1.2V+–40mV.
10. Push (CMD), (1), (2).
11. Push (ADR), (0), (F).
12. Push (SET).

B302–5 (4822 321 61617-PIN 5)



B302–6 (4822 321 61617-PIN 6)

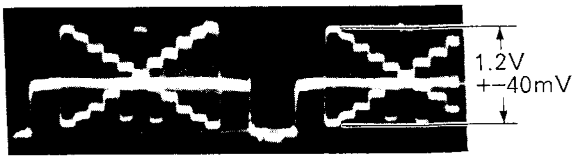
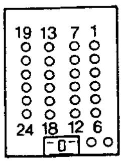


Fig. C16

11. ALC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	D4	—	GRAY SCALE CHART	OSCILLO-SCOPE
02	—	2C		
SPEC.			TP	
1.20V±40mV			B302-6 (4822 321 61617-PIN 6)  	

Note:
Perform this adjustment after finishing the AGC and A/D INPUT LEVEL ADJUSTMENT.

Purpose:
ALC level adjustment.

Symptom of Misadjustment:
The picture is too white or too dark.

1. Set the IRIS to Auto (SHIFT 1 + A).
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B302–6 (4822 321 61617-PIN 6).
4. Push "CMD", "1" and "8" keys.
5. Push "ADR", "D" and "4" keys.
6. Push "INC" or "DEC" key so that waveform is 1.20+–40mV.

7. Push "CMD", "0" and "2" keys.
8. Push "ADR", "2" and "C" keys.
9. Push "SET" key to write its adjusted data in EEPROM.

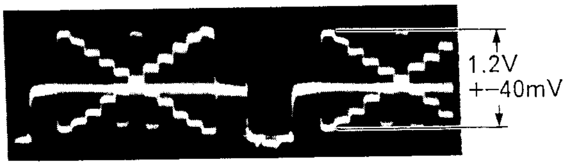

B302−6 (4822 321 61617-PIN 6)

Fig. C17

12. MANUAL IRIS ADJUSTMENT

NO.	ITEM	EEPROM ADDRESS	FORMULA	CMD	RESULT OF CALCULATION
1	OPEN1	4C (High digit)	ADR (2C)+24	READ: 04 WRITE: 12	
2	OPEN2	4C (Low digit)	ADR (4C)+24	READ: 14 WRITE: 02	
3	OPEN3	5C (High digit)	ADR (4C)+24	READ: 04 WRITE: 12	
4	CLOSE1	4D (High digit)	ADR (2C)−16	READ: 04 WRITE: 12	
5	CLOSE2	4D (Low digit)	ADR (4D)−16	READ: 14 WRITE: 02	
6	CLOSE3	5D (High digit)	ADR (4D)−16	READ: 04 WRITE: 12	

NOTE1: ADR (2C) = ALC Data

(How to calculate and enter the data into EEPROM)

NOTE2:
If the ALC Adjustment is incorrect the Manual IRIS SET UP will also be incorrect.
Be sure to carry out the ALC Adjustment procedure before doing the Manual IRIS Adjustment.

Push "SHIFT2+9" key simultaneously.
(All formulas for Manual Iris Adjustment are performed and results stored in EEPROM automatically.)

* Example
Item 1 : OPEN 1
Formula : ADR(2C)+24

Read out the data From Address (2C) of EEPROM as follows.

* Select read command (04) => Push (CMD),(0),(4)
* Select Address (2C) => Push (ADR),(2),(C)
* Push (SET) to Read the data => Push (SET)

When the (SET) key is pushed, the data LED will indicate the data of Address (2C).
Convert this data to decimal.
If data LED indicate(6D).
HEX(6D)=109(Decimal Value)

Now using the formula (2C)+24 Calculate the Reset.
(Substitute the Decimal Value for the HEX data in (2C)109+24=133.

Convert the Result to a HEX Value using the table (Fig.C18)
133(decimal)=85(in HEX CODE)

Store the above HEX Value in the EEPROM. Address(4C) High digit as follows.

* Select command(C12) => Push (CMD),(1),(2)
* Select Address(4C) => Push (ADR),(4),(C)
* Set the data (85) => Push (DATA),(8),(5)
* Push (SET) to write the data => Push (SET)

Note3:
Priority of Formula

ADR "2C"(Low digit) = ALC Adjustment

1. OPEN 1 : "4C"(High digit) =
ADR "2C"(Low digit)+24

2. OPEN 2 : "4C"(Low digit) =
ADR "4C"(High digit)+24

3. OPEN 3 : "5C"(High digit) =
ADR "4C"(Low digit)+24

ADR "2C"(Low digit) = ALC Adjustment

4. CLOSE 1 : "4D"(High digit) =
ADR "2C"(Low digit)−16

5. CLOSE 2 : "4D"(Low digit) =
ADR "4D"(High digit)−16

6. CLOSE 3 : "5D"(High digit) =
ADR "4D"(Low digit)−16

②

	Hexadecimal lower digit / Hexadecimal upper digic	0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F
	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
①	6	96	97	98	99	100	101	102	103	104	105	106	107	108	(109)	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
	b	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	d	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

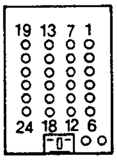
For example: If indication of EVR is "6D" (as upper digit is "6" and lower digit is "D"), a decimal value of "109" is obtained from the intersection of ① and ② in the above table.

Fig. C18 Hexadecimal–Decimal Conversion Table

(Hexadecimal-Decimal Conversion Table)

For some of adjustment items, calculation of hexadecimal data (indicated on LED of EVR Fixture) is needed to obtain the adjustment data.
In these cases, convert the hexadecimal value to decimal value before calculation and after calculation is finished reconvert the result to hexadecimal to obtain the adjustment data. Write the new hexadecimal adjustment data into EEPROM.
A hexadecimal-decimal conversion table is shown in Fig. C18.

13. Y CLIP LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B9	—	WHITE CHART	OSCILLO-SCOPE
02	—	3F		
SPEC.			TP	
V/S=7.7:3			B302-4 (4822 321 61617-PIN 4) 4822 321 61617 	

1. Set the IRIS to "OPEN"(SHIFT 1 + 0).
2. Aim the camera at White Chart.
3. Connect the Oscilloscope to B302–4 (4822 321 61617-PIN 4)
4. Push "CMD" key and then push "1" and "8".
5. Push "ADR" key and then push "B" and "9".
6. Push "INC" or "DEC" key so that level ratio of V and S becomes 7.7:3.
7. Push "CMD" key and then push "0" and "2".
8. Push "ADR" key and then push "3" and "F".
9. Push "SET" key.

B302–4 (4822 321 61617-PIN 4)

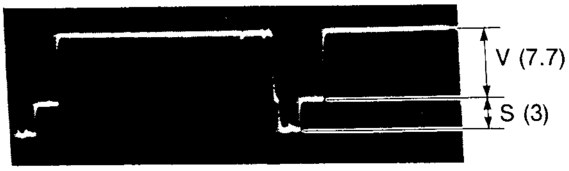


Fig. C19

14. INDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	–	WHITE CHART	VECTOR-SCOPE
02	—	25 (R-Y)		
12	—	25 (B-Y)		
SPEC.			TP	
CENTRE OF VECTORSCOPE			VIDEO OUT	

Purpose:
Set standard white level for each color temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

1. Connect the Video Out to Vectorscope.
2. Aim the camera at white chart. And push SHIFT 1+8 or push the white balance button (connect the camera operation unit to process C.B.A.) for white set (confirm vectors came to center).
3. Set the command "09" by pushing "CMD", "0" and "9" keys.
4. Set the Address to "BB" by pushing the "ADR" key, "B" key twice.
5. Push the "SET" key to read out the data from proper address of CPU–RAM.
   And then change command to "02" by pushing the "CMD" key and "0" key and "2" key, and change the address to "25" by pushing "ADR" key, "2" and "5" key (Do not change the data).
6. Push the "SET" key to write the data to EEPROM.
7. Change the command "09" by pushing "CMD","0" and "9" keys.
8. Set the address to "AB" by pushing the "ADR" key, "A" key and "B" key.
9. Push the "SET" key to read out the data from proper address of CPU–RAM.
   And then change command to "12" by pushing the "CMD" key and "1" key and "2" key, and change the address to "25" by pushing "ADR" key, "2" key and "5" key. (Do not change the data).
10. Push the "SET" key to write the data to EEPROM.

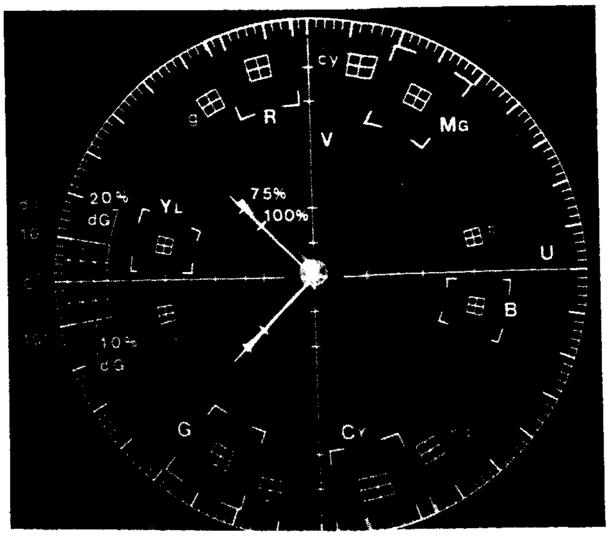


Fig. C20

15. COLOUR PHASE AND GAIN ADJUSTMENT (INDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VIDEO OUT
02	—	05 (R-Y G) 15 (R-Y P)		
12	—	05 (B-Y G) 15 (B-YP)		
SPEC.			TP	
			RED: 100+−3 degree/PHASE 169% +−10%/GAIN (RED/BURST) 166+−3 degree/PHASE 131%+−10%/GAIN (Yellow/BURST)	

Note:
For connection of EVR, refer to preparation (Fig.C6) and initial setting.

1. Aim the camera at colour chip chart.
2. Connect the Video Out to Vectorscope.

< R−Y GC >(Step 3 to 8 are R−Y gain Adjustment)

3. Set the command to "08" by pushing the "CMD" key, "0" key and "8" key.
4. Set the address to "95" (R−Y GC) by pushing the "ADR" key, "9" key and "5" key.
5. Push the "INC" or "DEC" key so that phase of Red and Yellow vectors approaches spec.
6. When best point is found, set the command to "02" by pushing the "CMD" key, "0" key and "2" key.
7. Set the address to "05" by pushing the "ADR" key, "0" key and "5" key.
8. Push the "SET" key.

< R−Y PHASE >
(Step 9 to 12 are R−Y phase Adjustment)

9. Change the command to "08", and change the address to "97" (Same procedures as 3, 4).
10. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
11. When best point is found, change the command to "02", and change the address to "15" (Same procedures as 6, 7).
12. Push the "SET" key.

< B−Y GC >
(Step 13 to 16 are B−Y gain Adjustment)

13. Change the command to "08" and change the address to "94" (B−Y GC) (Same procedures as 3, 4).
14. Push the "INC" key or "DEC" key so that gain of Red and Yellow vectors approaches the spec.
15. When best point is found, change the command to "12" and change the address to "05". (Same procedures as 6, 7)
16. Push the "SET" key.

< B−Y PHASE >
(Step 17 to 20 are B−Y PHASE Adjustment)

17. Change the command to "08" and change the address "96" (B−Y PHASE)(Same procedures as 3, 4).
18. Push the "INC" key or "DEC" key so that gain of Red and Yellow vectors approaches spec.
19. When best point is found, change the command to "12" and change the address to "15" (Same procedures as 6, 7).
20. Push the "SET" key.
21. Repeat steps 3 to 20 until all vectors are within spec as shown in Fig.C21.

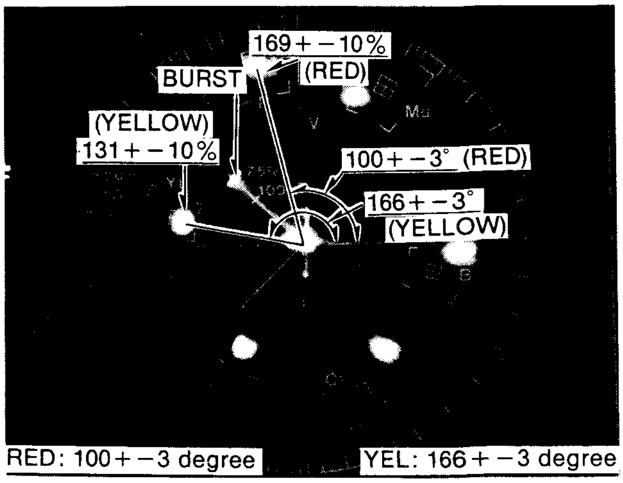


Fig. C21

16. OUTDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE OR OSCILLO-SCOPE
02	—	21 (R-Y)		
12	—	21 (B-Y)		
SPEC.			TP	
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED			VIDEO OUT	
CONDITION				
TEMPERATURE CONVERSION FILTER: 4822 480 50474 (C12) 4822 480 50476 (C2) IRIS: ALC				

Purpose:
Set standard white level for each color temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

1. Connect the Video Out to the Vectorscope.
2. Cover the lens with colour temperature conversion filter 4822 480 50474 and 4822 480 50476.
3. Aim the camera at white chart and push the SHIFT 1 + 8 or push the white balance button (connect the camera operation unit to process C.B.A.) for white set.
(confirm vectors moved to centre)
4. Set the command "09" by pushing "CMD", "0" and "9" keys.
5. Set the address to "BB" by pushing the "ADR" key, "B" key twice.
6. Push the "SET" key to read out the data from proper address of CPU-RAM.
And then change command to "02" by pushing the "CMD" key and "0" key and "2" key and change the address to "21" by pushing "ADR" key, "7" key and "1" key. (Do not change the data)
7. Push the "SET" key to write the data to EEPROM.
8. Change the command "09" by pushing "CMD", "0" and "9" keys.
9. Set the address to "AB" by pushing the "ADR" key, "A" key and "B" key.
10. Push the "SET" key to read out the data from proper address of CPU-RAM.
And then change command to "12" by pushing the "CMD" key and "1" key and "2" key and change the address to "21" by pushing "ADR" key, "2" key and "1" key. (Do not change the data)
11. Push the "SET" key to write the data to EEPROM.

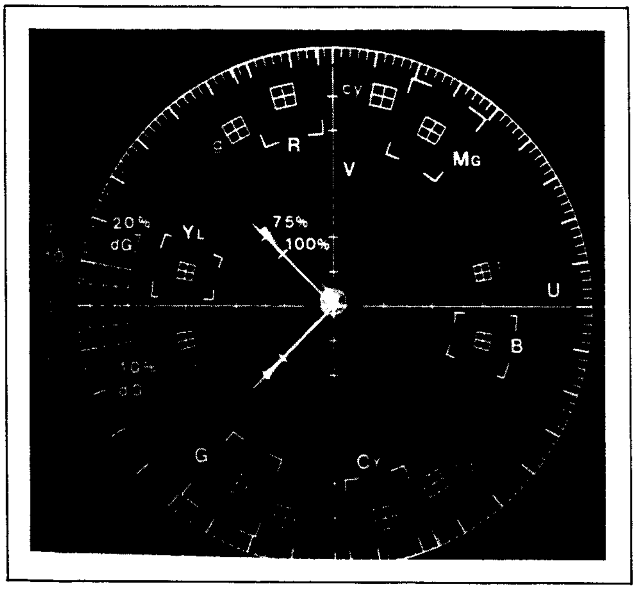


Fig. C22

17. COLOUR PHASE AND GAIN ADJUSTMENT (OUTDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VIDEO OUT
02	—	01 (R-Y G) 11 (R-Y P)		
12	—	01 (B-Y G) 11 (B-YP)		

SPEC.	TP
VECTORSCOPE	RED: 103 + −3 degree/ PHASE, 169% + −10%/ GAIN (Red/BURST) YEL: 163 + −3 degree/ PHASE, 112% + −10%/ GAIN (Yellow/BURST)

1. Connect the Video Out to the Vectorscope.
2. Aim the camera at colour chip chart and cover the lens with colour temperature conversion filter 4822 480 50474 and 4822 480 50476.

< R-Y GC >
(Step 3 to 6 are R-Y gain Adjustment)
3. Set the command to "08" by pushing the "CMD" key, "0" key and "8" key.
4. Set the address to "95" (R-Y GAIN) by pushing the "ADR" key, "9" key and "5" key.
5. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
6. When best point is found, change the command to "02" by pushing "CMD" key, "0" key and "2" key and change the address to "01" by pushing the "ADR" key, "0" key and "1" key (Do not change the data) and then push the "SET" key to write the adjusted data to EEPROM.

< R-Y PHASE >
(Step 7 to 9 are R-Y Phase Adjustment)
7. Change the command to "08" by pushing the "CMD" key, "0" key and "8" key.
Change the address to "97" by pushing the "ADR" key, "9" key and "7" key.
8. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
9.- When best point is found change the command to "02" by pushing the "CMD" key, "0" key and "2" key. (Do not change the data), and change the address to "11" by pushing "ADR" key, "1" key twice.
Next push the "SET" key to write the adjusted data to EEPROM.

< B-Y GC >
(Step 10 to 12 are B-Y gain Adjustment)
10. Change the command to "08" by pushing the "CMD" key "0" key and "8" key. Change the address to "94" (B-Y Gain) by pushing "ADR" key, "9" key and "4" key.
11. Push the "INC" or "DEC" key so that gain of Red and Yellow vectors approaches spec.
12. When best point is found change the command to "12" and change the address to "01" while keeping the data.
Next push the "SET" key to write the adjusted data to EEPROM.

< B−Y PHASE >

(Step 13 to 15 are B−Y Phase Adjustment)

13. Change the command to "08".
    Change the address to "96"(B−Y Gain).
14. Push the "INC" or "DEC" key so that gain of Red and Yellow vectors approaches spec.
15. When the best point is found, change the command to "12" and change the address to "11" (Do not change the data). Next push the "SET" key to write the adjusted data to EEPROM.

16. Repeat steps 3 to 15 until vectors are within spec as shown in Fig.C23

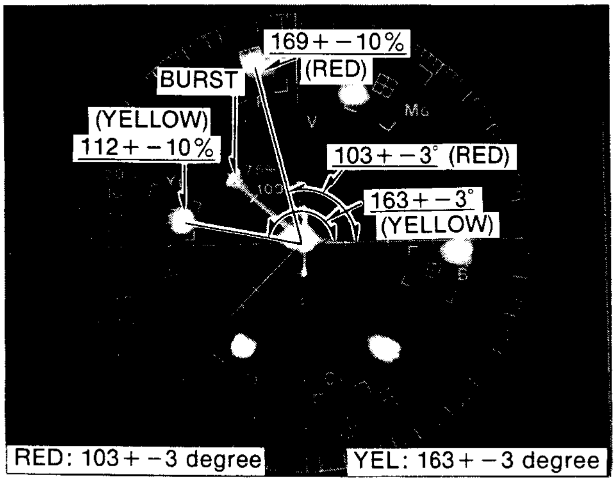


Fig. C23

18. DATA WRITING FOR COLOUR REPRODUCTION AND WHITE BALANCE

Purpose:

Each adjustment voltage is recorded in EEPROM as digital data. For colour reproduction adjustments such as white balance, phase and gain adjustments, the adjustments have only been performed for indoor lighting (3200 degree kelvin) and outdoor lighting (5600 degree kelvin). The EEPROM requires the data for other lighting conditions such as 3600 degree kelvin, 4500 degree kelvin and 6000 degree kelvin. In order to supply the rest of the data the following calculation has to be done and the results entered in the proper address of EEPROM.

Misentering:

White balance and color reproduction in lighting conditions between indoor and outdoor are poor.

Note 1:

4822 209 52265 (New ROM) for EVR must be installed in EVR fixture.
Mode selector should be "A" side.

1. Push "SHIFT 2 + 3" key simultaniously.
   (All formulas in Fig.C24, are performed and results stored in EEPROM automatically)

Note 2:

How to calculate and enter the data manually.
You can do calculation and entering the data to EEPROM manually as follows;

(For example)

ITEM: R−Y GC 36

FORMULA: ADR05+0.882(ADR01−ADR05)

EEPROM ADDRESS: 03

1) Read out the data
   ADR05: Set the command to "04".
   Set the address to "05".
   Push the "SET" button.
   The number which is indicated in "DATA" LED is a data of ADR05(Address "05") for example, if indicated data is "56", substitute "56" to ADR05. (This is hexadecimal number)
   The same as above, read out the data from address "01".
   For example if data which is read out is ADR01="6C", ADR05="56" above formula becomes:
   R−Y GC 36 = 56+−1.00x(6C−56).
2) Convert the hexadecimal data into decimal number using conversion table. (Shown in Fig.C18) For example, "56" in hexadecimal is "86" in decimal from intersection of 5 and 6.
   Substitute it into the formula.
   Therefore,
   R−Y GC 36 = 86+0.882x(108−86)
   = 86+0.882x(22)
   = 105
3) Convert the result "105" to hexadecimal using conversion table (Fig.C18).
   "105" decimal is "69" in hexadecimal.
   Write the "69" into EEPROM address "03".
   * Set the command to "02".
   * Set the address to "03".
   * Set the data "69".
   * Push the "SET" key.

Caluculation for Colour Rcproduction

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	R-Y GC 36	03 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"05" + 0.882 x (ADR"01" - ADR"05")
(2)	R-Y GC 45	02 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"05" + 0.471 x (ADR"01" - ADR"05")
(3)	R-Y GC 28	06 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"05" + 0.412 x (ADR"01" - ADR"05")
(4)	R-Y GC 60	00 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"05" + 1.941 x (ADR"01" - ADR"05")
(5)	R-Y GC 33	04 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"05" + 0.000 x (ADR"01" - ADR"05")
(6)	R-Y MAT 28	16 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"15" + 0.000 x (ADR"11" - ADR"15")
(7)	R-Y MAT 36	13 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"15" - 0.091 x (ADR"11" - ADR"15")
(8)	R-Y MAT 45	12 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"15" - 0.750 x (ADR"11" - ADR"15")
(9)	R-Y MAT 60	10 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"15" + 0.250 x (ADR"11" - ADR"15")
(10)	R-Y MAT 33	14 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"15"
(11)	B-Y GC 28	06 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"05" + 0.333 x (ADR"01" - ADR"05")
(12)	B-Y GC 36	03 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"05" + 0.667 x (ADR"01" - ADR"05")
(13)	B-Y GC 45	02 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"05" + 0.939 x (ADR"01" - ADR"05")
(14)	B-Y GC 60	00 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"05" + 0.848 x (ADR"01" - ADR"05")
(15)	B-Y GC 33	04 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"05" - 0.000 x (ADR"01" - ADR"05")
(16)	B-Y MAT 28	16 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"15" + 0.000 x (ADR"11" - ADR"15")
(17)	B-Y MAT 36	13 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"15" - 1.750 x (ADR"11" - ADR"15")
(18)	B-Y MAT 45	12 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"15" - 1.125 x (ADR"11" - ADR"15")
(19)	B-Y MAT 60	10 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"15" + 0.250 x (ADR"11" - ADR"15")
(20)	B-Y MAT 33	14 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"15"
(21)	R-Y WB 28	26 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" + 1.073 x (ADR"25" - ADR"21")
(22)	R-Y WB 33	24 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.293 x (ADR"25" - ADR"21").
(23)	R-Y WB 36	23 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.585 x (ADR"25" - ADR"21")
(24)	R-Y WB 45	22 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.073 x (ADR"25" - ADR"21")
(25)	R-Y WB 49	29 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"21"
(26)	R-Y-WB 60	20 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.220 x (ADR"25" - ADR"21")
(27)	R-Y WB LLIM	27 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “20” (L)
(28)	B-Y WB 28	26 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" + 0.297 x (ADR"25" - ADR"21")
(29)	B-Y WB 33	24 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.063 x (ADR"25" - ADR"21")
(30)	B-Y WB 36	23 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.125 x (ADR"25" - ADR"21")
(31)	B-Y WB 45	22 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.453 x (ADR"25" - ADR"21")
(32)	B-Y WB 49	29 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"21"
(33)	B-Y WB 60	20 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 1.141 x (ADR"25" - ADR"21")
(34)	B-Y WB LLIM	27 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “20” (H)

Fig. C24-1

Caluculation for Auto White Balancc

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	BH 28	46 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" + 0.984 x (ADR"25" - ADR"21")
(2)	BH 30	45 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 + 0.984 x (ADR"25" - ADR"21")
(3)	BH 36	43 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 + 0.250 x (ADR"25" - ADR"21")
(4)	BH 45	42 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 - 0.188 x (ADR"25" - ADR"21")
(5)	BH 51	41 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 - 0.781 x (ADR"25" - ADR"21")
(6)	BH 60	40 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 - 1.891 x (ADR"25" - ADR"21")
(7)	BH TR	48 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 + 0.250 x (ADR"25" - ADR"21")
(8)	BH SKY	47 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25 - 1.953 x (ADR"25" - ADR"21")
(9)	BL 28	36 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.422 x (ADR"25" - ADR"21")
(10)	BL 30	35 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.422 x (ADR"25" - ADR"21")
(11)	BL 36	33 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.656 x (ADR"25" - ADR"21")
(12)	BL 45	32 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.781 x (ADR"25" - ADR"21")
(13)	BL 51	31 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 1.891 x (ADR"25" - ADR"21")
(14)	BL 60	30 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 1.953 x (ADR"25" - ADR"21")
(15)	BL TR	38 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"25" - 0.781 x (ADR"25" - ADR"21")
(16)	BL SK	37 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR"00"
(17)	RH 28	46 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" + 2.341 x (ADR"25" - ADR"21")
(18)	RH 30	45 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" + 0.659 x (ADR"25" - ADR"21")
(19)	RH 36	43 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.114 x (ADR"25" - ADR"21")
(20)	RH 45	42 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.902 x (ADR"25" - ADR"21")
(21)	RH 51	41 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.341 x (ADR"25" - ADR"21")
(22)	RH 60	40 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.927 x (ADR"25" - ADR"21").
(23)	RH TR	48 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.437 x (ADR"25" - ADR"21").
(24)	RH SK	47 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.927 x (ADR"25" - ADR"21")
(25)	Rxisth	4A (LOW DIGIT)	READ : 04 WRITE: 02		ADR “42” (L)
(26)	RL 28	36 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" + 0.659 x (ADR"25" - ADR"21").
(27)	RL 30	35 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.114 x (ADR"25" - ADR"21").
(28)	RL 36	33 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 0.902 x (ADR"25" - ADR"21").
(29)	RL 45	32 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.439 x (ADR"25" - ADR"21").
(30)	RL 51	31 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.854 x (ADR"25" - ADR"21").
(31)	RL 60	30 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 1.927 x (ADR"25" - ADR"21").
(32)	RL TR	38 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 2.000 x (ADR"25" - ADR"21").
(33)	RL SK	37 (LOW DIGIT)	READ : 04 WRITE: 02		ADR"25" - 2.000 x (ADR"25" - ADR"21").

Fig. C24-2

19. ADDITIONAL FOR HOW TO USE E.V.R.

E.V.R. FIXTURE

Camera Process section uses a memory IC called a E.E.P.R.O.M.(Electrical Erasable Programmable Read Only Memory) that replaces the variable resistor in conventional camera process. In the conventional camera process, each adjustment point was adjusted by turning variable resistors as shown in Fig.C25. In this model adjustment voltage is recorded in the EEPROM as 8 bit digital data. The EEPROM supplies the recorded adjustment voltage to the adjustment point as shown in Fig.C26.

The data in the EEPROM can be easly changed electrically. The E.V.R. (Electric Variable Resistor) has been designed to change the 8 bit data of EEPROM in process circuit. The E.V.R. can also communicate directly with the RAM of the micro processor to change each control voltage. In normal operation the EEPROM would send the voltage data to RAM where the digital data is used to changed the adjustment values in the various cicuits. Using the E.V.R. you can change the data stored in the EEPROM easily thereby adjusting the camera process section. And the E.V.R. can also send the data to the RAM directly to confirm the adjustment.

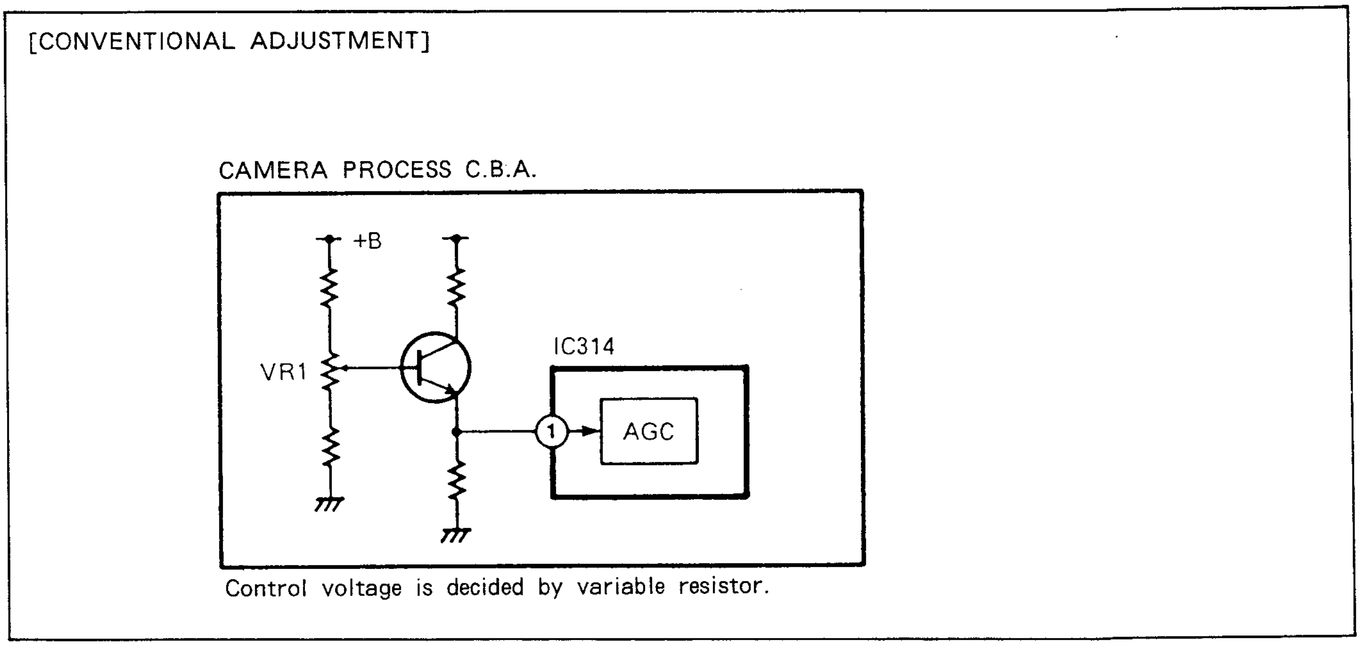

[CONVENTIONAL ADJUSTMENT]
CAMERA PROCESS C.B.A.
+B
VR1
IC314
1
AGC
Control voltage is decided by variable resistor.

Fig. C25

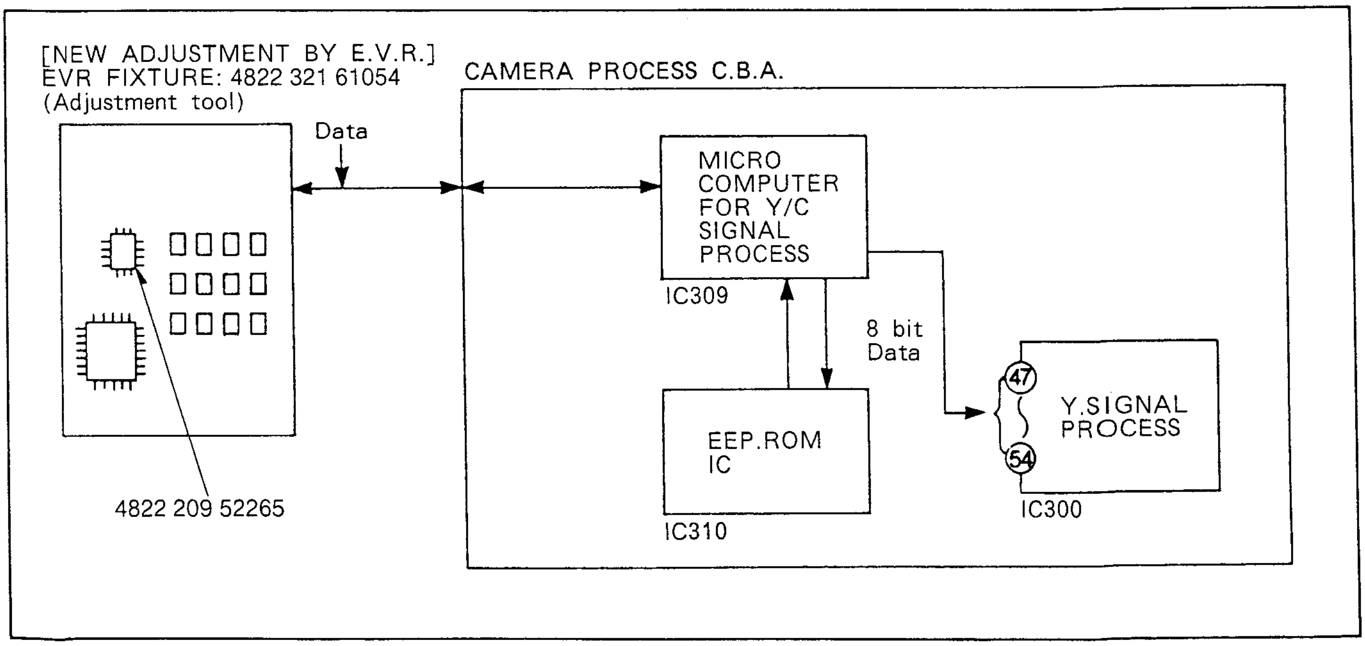
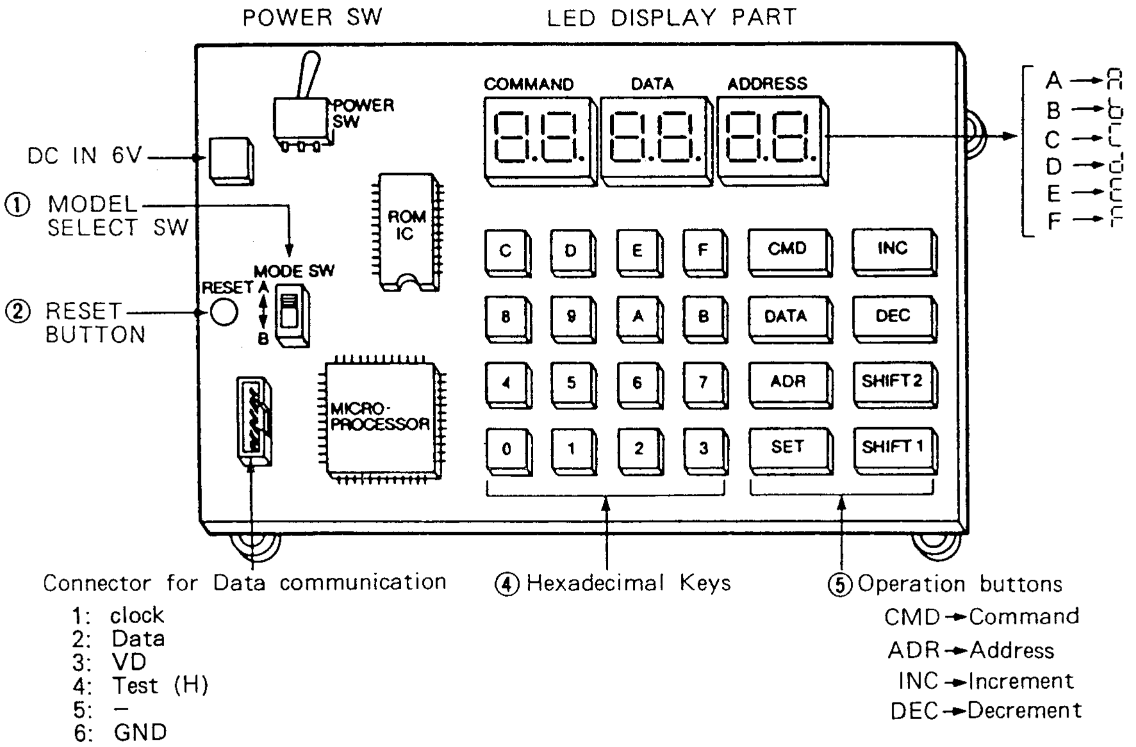

[NEW ADJUSTMENT BY E.V.R.]
EVR FIXTURE: 4822 321 61054
(Adjustment tool)
Data
4822 209 52265
CAMERA PROCESS C.B.A.
MICRO COMPUTER FOR Y/C SIGNAL PROCESS
IC309
8 bit Data
EEP.ROM IC
IC310
47
54
Y.SIGNAL PROCESS
IC300

Fig. C26

Name of key


POWER SW
LED DISPLAY PART
POWER SW
COMMAND
DATA
ADDRESS
A → A
B → b
C → C
D → d
E → E
F → F
DC IN 6V
① MODEL SELECT SW
MODE SW
RESET
A
B
② RESET BUTTON
ROM IC
MICRO-PROCESSOR
C
D
E
F
CMD
INC
8
9
A
B
DATA
DEC
4
5
6
7
ADR
SHIFT 2
0
1
2
3
SET
SHIFT 1
Connector for Data communication
1: clock
2: Data
3: VD
4: Test (H)
5: –
6: GND
④ Hexadecimal Keys
⑤ Operation buttons
CMD → Command
ADR → Address
INC → Increment
DEC → Decrement

NO.	NAME	DESCRIPTION
①	MODE SW	MODEL selection switch. In case of this model, turn it to A side
②	RESET BUTTON	After Power is on, if operation is not stable, push this SW.
③	ROM IC	ROM IC of which Programing (to operate E.V.R) is memorized in. In the future, to cope with new camcorder servicing, this ROM IC could be replaced to new version.
④	HEXADECIMAL KEYS	Key buttons of 16 pieces (from "0" to "F"). These are used when "COMMAND", "DATA" or "ADDRESS" is set.
⑤	OPERATION BUTTONS	The buttons to operate writing, reading or setting the data.
	CMD: Command button	This is used to decide the which mode (command) between E.V.R and camcorder (for example, data writing or reading) to perform.
	DATA: Data button	For changing Data.
	ADR: Address button	To appoint the EEPROM address or RAM address.
	SET: Set button	To perform the appointed command (for example reading or writing).
	INC: Incliment DEC: Decliment	Increase or decrease the data one by one (+1, −1)
	SHIFT 1 button	To carry out macro operation (while pushing with hexadecimal keys) SHIFT 1 button is used. (Macro operations will be described later)
	SHIFT 2 button	To carry out macro operation(while pushing with hexadecimal keys) SHIFT 2 button is used (Macro operations will be described later.)

Fig. C27

(Before Adjusting How to use the E.V.R. Fixture)

1) How to read out the data which is being stored in EEPROM.
Connect the E.V.R. Fixture as shown in Fig.C3.

Result:
Adjustment value of AGC has been set for "6A". It is advisable to read out the data like this and make a note of it before writing the new data so that if a error should occure you can rewrite original data.

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, Reading out the data of AGC Adjustment comunication from camcorder to E.V.R. EEPROM→E.V.R.	1	Set the Command mode to "14", "14" is read out command. (Refer to command description)	CMD 1 4	LED lights up 14.80 00 Command setting
	2	Set the Address of EEPROM	ADR 6 A	14 80 6A. Address setting of EEPROM LED lights up
	3	Read out the data	SET Push this for 2 seconds	14 09.6A data for AGC for example LED lights up

Fig. C28

2) Writing the New Data

(1) Search and Write Procedure
(For example: AGC Adjustment).

Confirmation:
Confirm whether data is written correctly or not.

Procedure:
1. Set the Command to "04".
2. Set the Address to "41".
3. Push the "SET" button.
4. The number which is indicated on DATA LED is a data which has been written.

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data. E.V.R.→EEPROM	1	Set the command to "18".	CMD 1 8	Command for search mode.
	2	Set the Address of RAM to "BC" E.V.R.→RAM (communication from E.V.R. to RAM)	ADR B C	LED lights up. 18.80 6C
	3	Adjustment Push "DEC" or "INC" button so that AGC at B302–20 becomes 240	Search with INC or DEC	18 9 16C. LED lights up
	4	Change the command to "12"	CMD 1 2	LED lights up 12.9 16C Command for Direct Writing

Fig. C29

Item		Proceduring Order	Buttons to be Pushed	LED Indication
	5	Set the address of EEPROM to "6A"	[ADR] [4] [F]	address of EEPROM 02 91 6.A LED lights up
	6	Do not change the data after adjustment	[DATA] [9] [1]	02 91.6A LED lights up
	7	Write the data	[SET] Push this for 2sec.	LED disappear 02 91 6A

Fig. C30

3) Direct Writing Procedure

Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data	1 2 3	**Searching the best Point.** **same as (1)**	**same as (2)**	**same as (2)**
	4	Change the command to "01"	[CMD] [1] [2]	LED lights up 12.00 21 Command for Direct writing
	5	Set the address of EEPROM to "6A"	[ADR] [6] [A]	address of EEPROM 12 00 6.A LED lights up
	6	Set the data of best point "91"	[DATA] [9] [1]	12 91.6A LED lights up
	7	**Write the data**	[SET] **Push this for 2sec.**	LED disappear. 12 91 6A

Fig. C31

(Adjustment Items required after replacing the individual components.)

When following parts are replaced, check the following adjustment items and adjust if necessary.

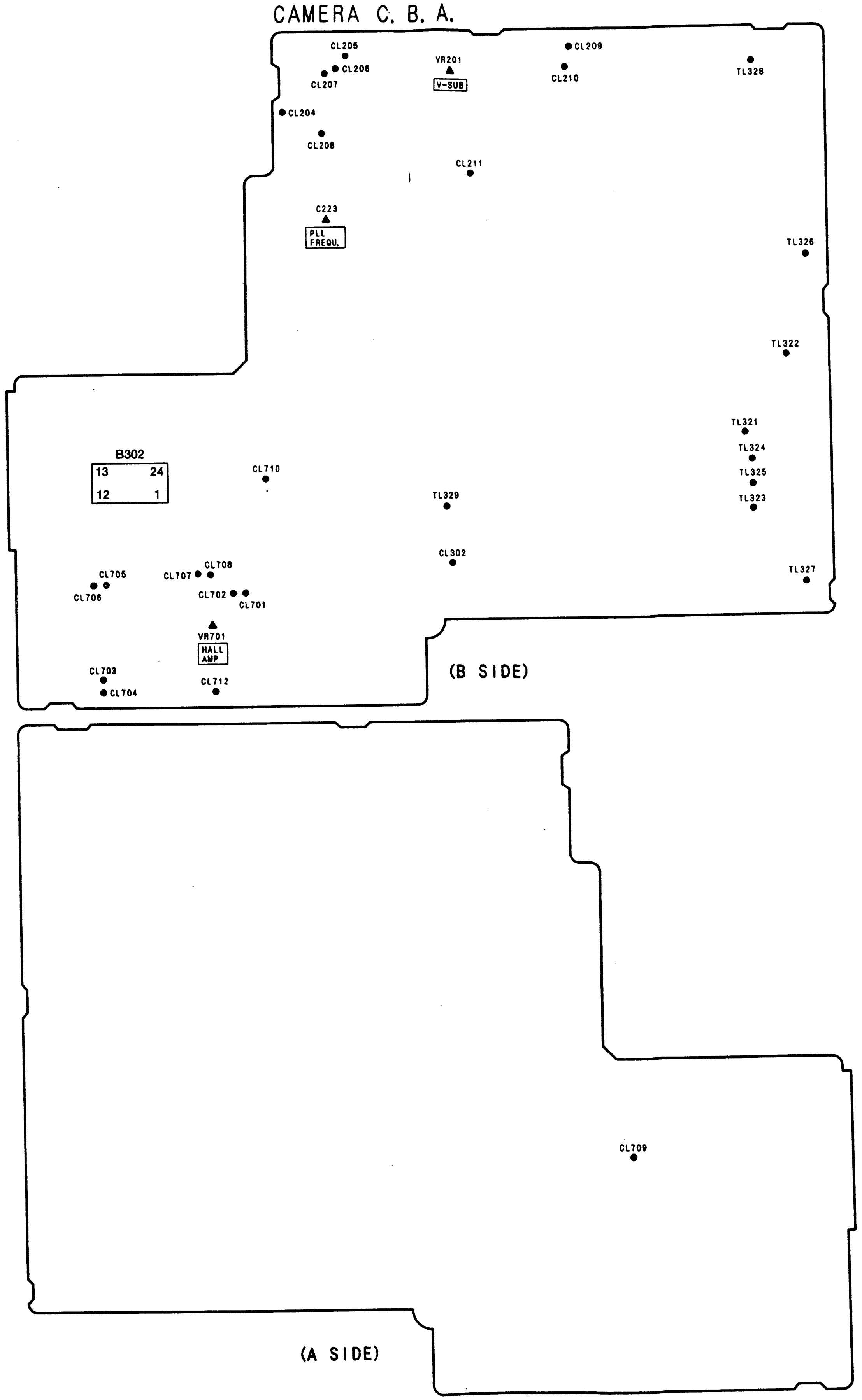
NO.	Replaced Parts	Adjustment point or check points which are required			
		ALL ADJ. Points	Colour Reproduction	Focus & Zoom Encoder	Other ADJ.
1	IC310(EEPROM)	○			
2	CCD Unit Individual		○	○	
3	Process C.B.A	○			
4	Sensor AF C.B.A	△	○	○	
5	Lens Unit			○	Hole Amp
6	Focus Encoder C.B.A			○	
7	IC204				CDS Gain
8	IC702				Hole Amp
9	other				

○ mark ....Adjustment may be required.
△ mark ....Confirm adjustment necessity and adjust it, if necessary.
Colour Reproduction ....WB, Colour gain, colour phase adjustments.

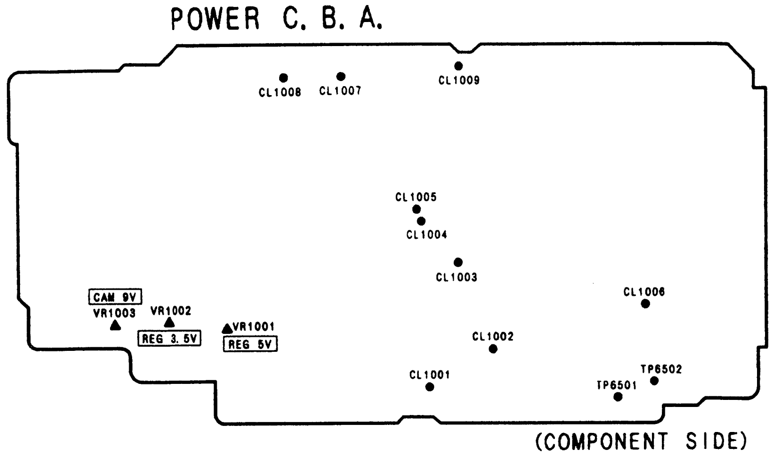
Fig. C32

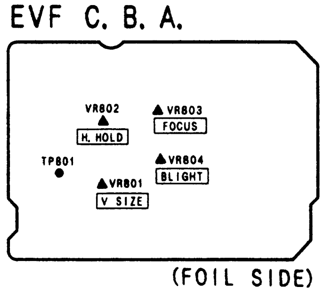
LOCATION OF TEST POINTS AND CONTROLS (1)

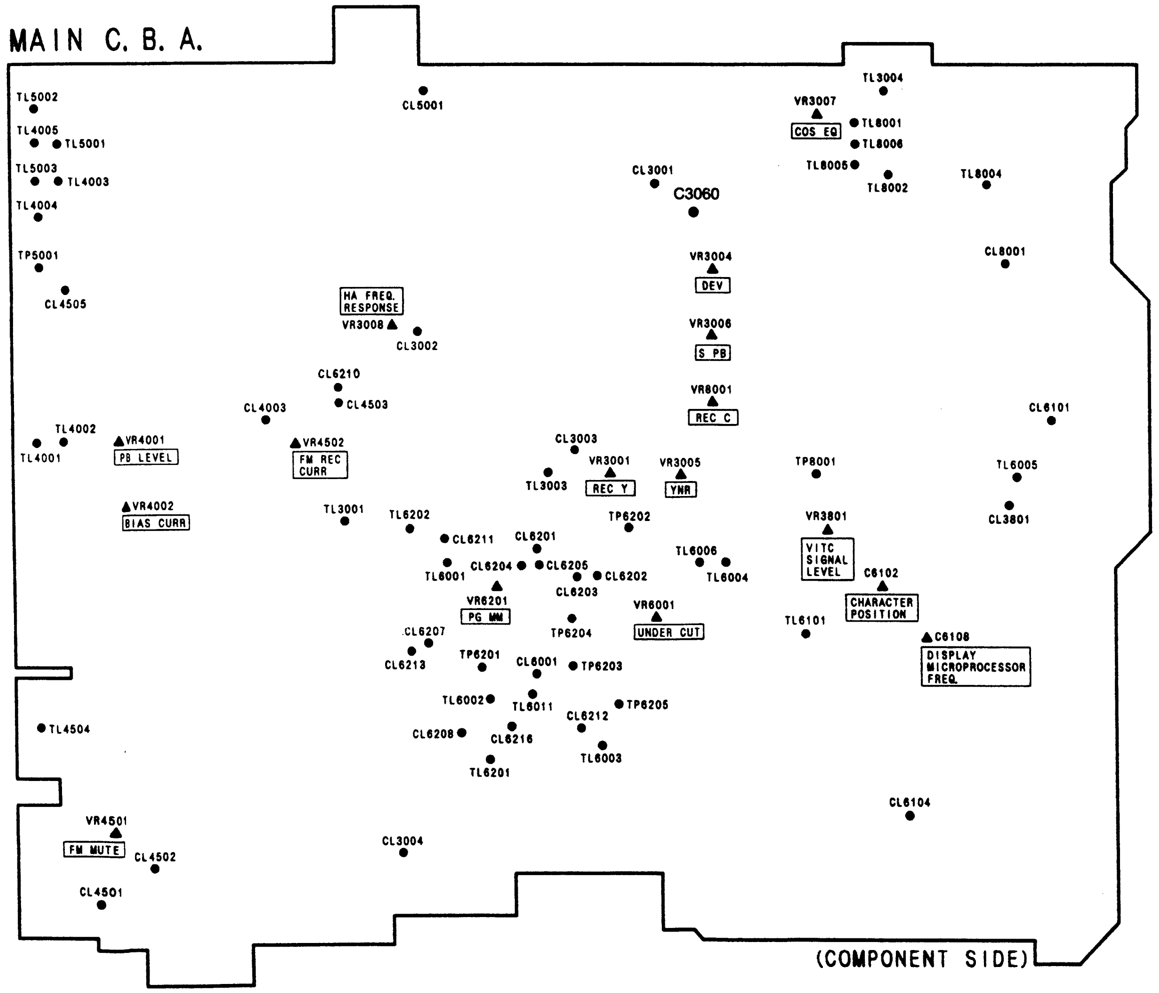
CAMERA C. B. A.


CL205
CL206
CL207
VR201
V-SUB
CL209
CL210
TL328
CL204
CL208
CL211
C223
PLL FREQU.
TL326
TL322
TL321
TL324
TL325
TL323
B302
13
24
12
1
CL710
TL329
CL302
TL327
CL705
CL706
CL707
CL708
CL702
CL701
VR701
HALL AMP
CL703
CL704
CL712
(B SIDE)
CL709
(A SIDE)

LOCATION OF TEST POINTS AND CONTROLS (2)


POWER C. B. A.
CL1008
CL1007
CL1009
CL1005
CL1004
CL1003
CL1006
CAM 9V
VR1003
VR1002
REG 3.5V
VR1001
REG 5V
CL1002
CL1001
TP6502
TP6501
(COMPONENT SIDE)


EVF C. B. A.
VR802
H. HOLD
VR803
FOCUS
TP801
VR804
BLIGHT
VR801
V SIZE
(FOIL SIDE)


MAIN C. B. A.
TL5002
TL4005
TL5001
TL5003
TL4003
TL4004
TP5001
CL4505
CL5001
HA FREQ. RESPONSE
VR3008
CL3002
CL6210
CL4503
CL4003
TL4002
TL4001
VR4001
PB LEVEL
VR4502
FM REC CURR
VR4002
BIAS CURR
CL3003
VR3001
TL3003
REC Y
VR3005
YNR
TL3001
TL6202
CL6211
CL6201
TP6202
TL6001
CL6204
CL6205
CL6202
CL6203
VR6201
PG MM
TP6204
VR6001
UNDER CUT
CL6207
CL6213
TP6201
CL6001
TP6203
TL6002
TL6011
TP6205
CL6212
CL6208
CL6216
TL6003
TL6201
TL6006
TL6004
TL4504
VR4501
FM MUTE
CL4502
CL4501
CL3004
TL3004
VR3007
COS EQ
TL8001
TL8006
TL8005
TL8002
TL8004
CL3001
C3060
VR3004
DEV
VR3006
S PB
VR8001
REC C
CL8001
CL6101
TP8001
TL6005
CL3801
VR3801
VITC SIGNAL LEVEL
C6102
CHARACTER POSITION
TL6101
C6108
DISPLAY MICROPROCESSOR FREQ.
CL6104
(COMPONENT SIDE)

2-5-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely sligned before viewfinder adjustments are made.

1. CENTERING ADJUSTMENT

(1) Aim the camera at the registation chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

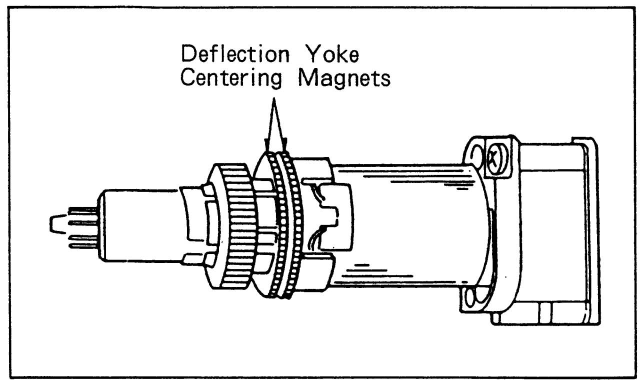

Deflection Yoke
Centering Magnets

Fig. E1

2. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
╳	VR803	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTION	

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

3. FOCUS ADJSUTMENT

TP	ADJ.	LENS CAP	CHART
TP801	VR802	NO	╳
M. EQ.		**SPEC.**	
COUNTER		15.90+−0.1KHz	

4. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
╳	VR801	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED	

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust th vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

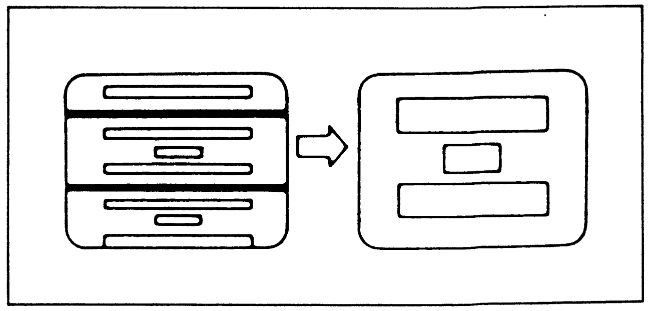


Fig. E2

5. BRIGHTNESS ADJUSTMENT

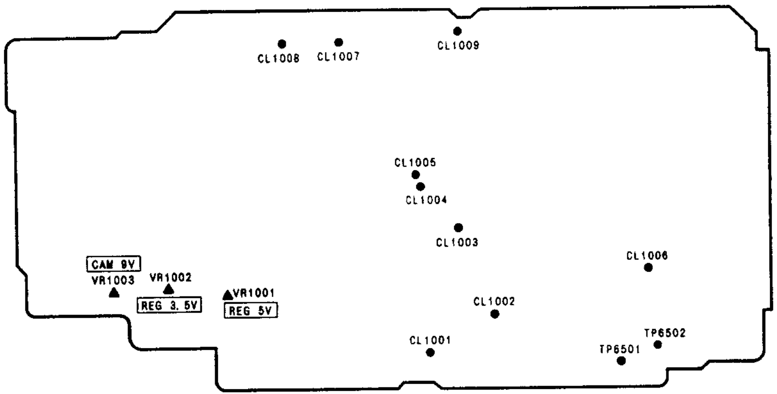
TP	ADJ.	LENS CAP	CHART
╳	VR821	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR821) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

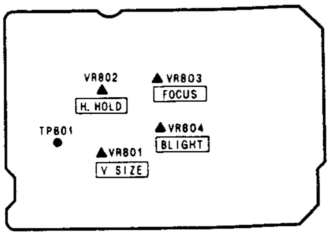
LOCATION OF TEST POINTS AND CONTROLS (2)

POWER C. B. A.


CL1008
CL1007
CL1009
CL1005
CL1004
CL1003
CL1006
CAM 9V
VR1003
VR1002
REG 3.5V
VR1001
REG 5V
CL1002
CL1001
TP6502
TP6501

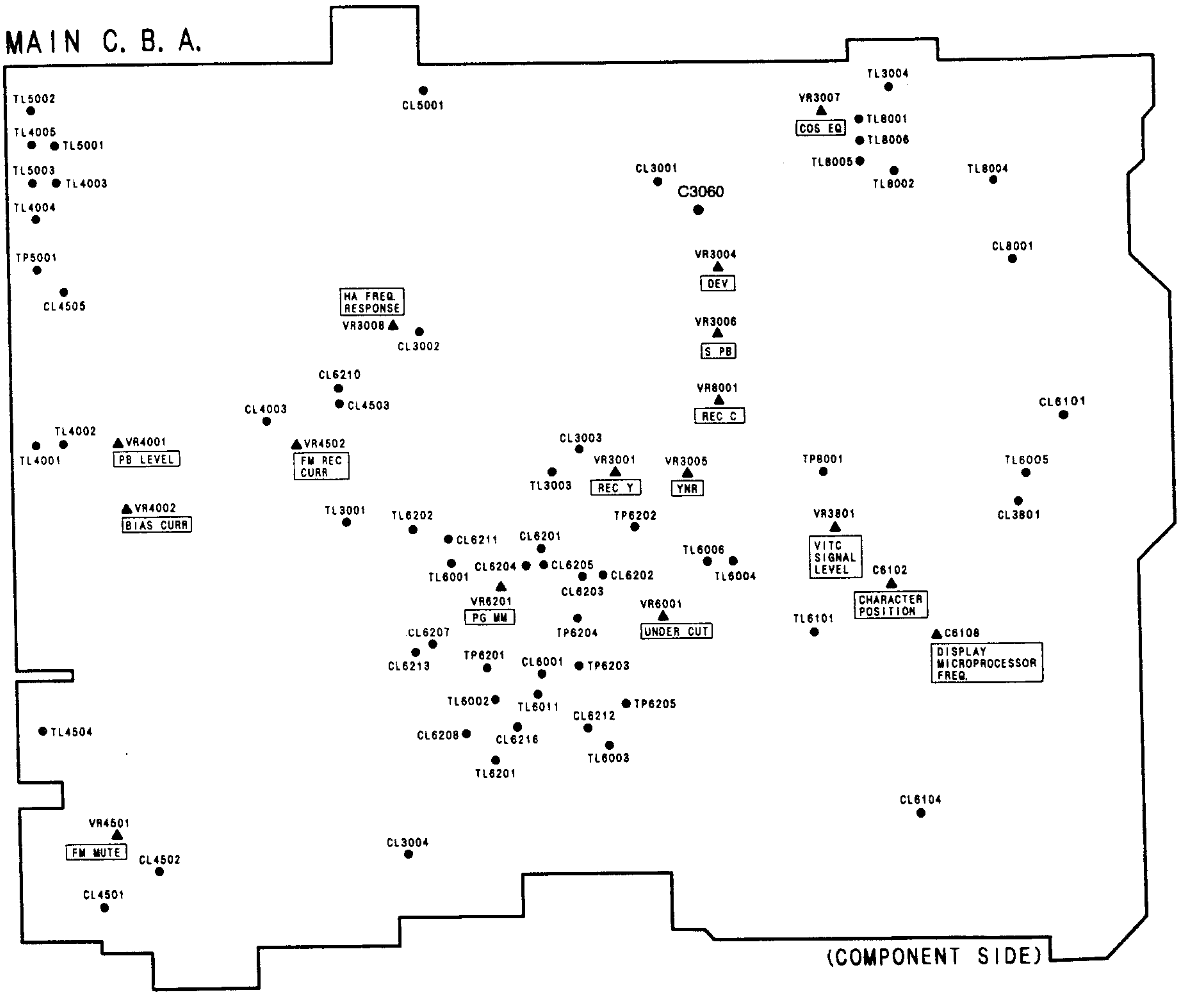
(COMPONENT SIDE)

EVF C. B. A.


VR802
H. HOLD
VR803
FOCUS
TP801
VR804
BLIGHT
VR801
V SIZE

(FOIL SIDE)

MAIN C. B. A.


TL5002
CL5001
TL3004
VR3007
COS EQ
TL8001
TL8006
TL4005
TL5001
TL5003
TL4003
CL3001
C3060
TL8005
TL8002
TL8004
TL4004
TP5001
CL4505
VR3004
DEV
CL8001
HA FREQ.
RESPONSE
VR3008
CL3002
VR3006
S PB
CL6210
CL4503
VR8001
REC C
CL6101
CL4003
TL4002
TL4001
VR4001
PB LEVEL
VR4502
FM REC
CURR
CL3003
VR3001
REC Y
VR3005
YNR
TL3003
TP8001
TL6005
CL3801
VR4002
BIAS CURR
TL3001
TL6202
TP6202
VR3801
VITC
SIGNAL
LEVEL
CL6211
CL6201
TL6006
TL6004
TL6001
CL6204
CL6205
CL6202
CL6203
C6102
CHARACTER
POSITION
VR6201
PG MM
VR6001
UNDER CUT
TP6204
TL6101
C6108
DISPLAY
MICROPROCESSOR
FREQ.
CL6207
CL6213
TP6201
CL6001
TP6203
TL6002
TL6011
TP6205
CL6212
TL4504
CL6208
CL6216
TL6003
TL6201
CL6104
VR4501
FM MUTE
CL4502
CL3004
CL4501
(COMPONENT SIDE)

TRIGGERING THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : TP (video output)
V. rate : TP6201 (Head Switching signal)

Note:
Begin with the Unit set up as follows except for special instructions in each adjustment item.

1. Tape Speed Selector.....SP position.
2. Digital Tracking SW.....ON position.
3. S-VHS-C-Movie. System Selector.....Auto
4. EDIT SW.....OFF position.

POWER SECTION

1. REG. 5V ADJUSTMENT

Purpose:
To properly calibrate the 5V voltage to 4.72 DC +- 0.025V.

Symptom of Misadjustment:
All circuits in the unit will not operate properly.

TP	ADJ.	MODE	INPUT
CP1001 (HOT) CP1006 (GND)	VR1001	S-VHS (SP) CAMERA RECORDING (DIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	4.72+ −0.025V	

Note:
EVF, Camera Unit, and camera operation unit are connect to the VTR unit.
Turn the Power sw ON and then set the DIS system to the ON position.

(1) Connect the D.V.M. To CP1001(HOT) and CP1006(GND) Adjust the VR1001 so that D.V.M. is 4.72+-0.025V.

2. CAMERA 3.5V ADJUSTMENT

Purpose:
To properly calibrate the voltage to 3.5V DC+- 0.025V.

Symptom of Misadjustment:
All circuits in N Unit will not operate properly.

TP	ADJ.	MODE	INPUT
CP1002 (HOT) CP1006 (GND)	VR1002	S-VHS (SP) CAMERA RECORDING (DIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	3.50+ −0.025V	

Note:
EVF, Camera Unit and camera operation unit are connected to the VTR unit.
Turn the power sw on and then set DIS system to the ON position.

(1) Connect the D.V.M. to the CP1002(HOT) and CP1006(GND) Adjust the VR1002 so that D.V.M. is 3.50+-0.025V.

3. CAMERA 9V REGULATOR

TP	ADJ.	MODE	INPUT
CP1003 (HOT) CP1006 (GND)	VR1003	S-VHS (SP) CAMERA RECORDING (DIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	8.65+0.07V −0.03V	

Note:
DIS system must be set to the ON position.

(1) Connect the D.V.M. To CP1003(HOT) and CP1006(GND) Adjust the VR1003 so that D.V.M. is 8.65+0.07V,-0.03V.

SERVO SECTION

4. PG SHIFTER ADJUSTMENT

Purpose:
Determine the Head Switching point during play-back.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical jitter in the picture.

TP	ADJ.	MODE	INPUT
TP6201 VIDEO OUT TP3005	VR6201	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (4822 397 30186)	OSCILLO-SCOPE	6.5H±0.5H	

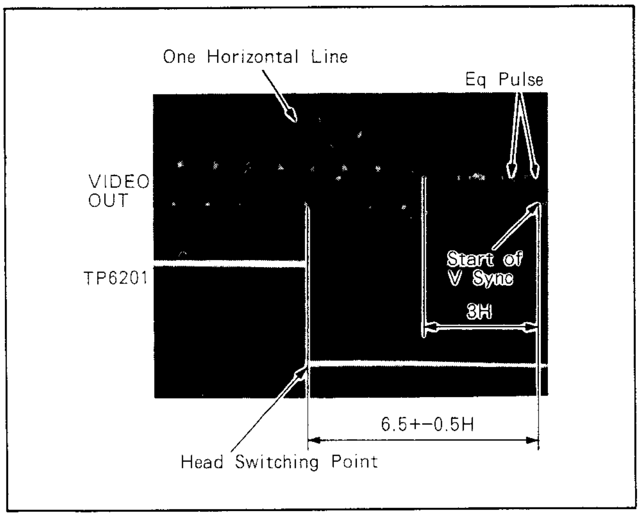


Fig. V2

LUMINANCE & CHROMINANCE SECTION

5. S-VHS MODULATOR LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL3003	VR3004	S-VHS STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	0.34+-0.01Vp-p	

1. Connect the jumper wire between TEST MODE PIN8 and PIN11.
2. Supply colour Bar signal to TEST MODE PIN14.
3. Connect the oscilloscope to TL3003.
4. Adjust the VR3004 so that signal level is 0.34+-0.01Vp-p.

6. RECORDING CURRENT ADJUSTMENT REC CHROMA LEVEL ADJUSTMENT

Purpose:
Set the optimum Record Chroma Level.

Symptom of Misadjustment:
If the Record Chroma Level is too high, Beats may be seen in the picture. If the Level is too low

TP	ADJ.	MODE	INPUT
TP5001 (HOT) TP5002 (GND)	VR8001	S-VHS REC/PLAY (SP)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	14+-2mVp-p	

1. Connect the oscilloscope to TP5001(HOT) and TP5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Eliminate luminance signal by turning off
5. Adjust the VR8001 so that chroma level is 14+-2mVp-p.

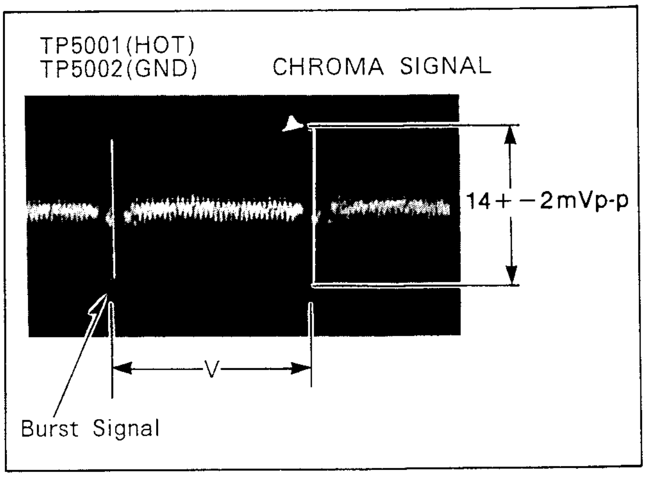


Fig. V3

7. LUMINANCE RECORDING CURRENT ADJUSTMENT

Purpose:
Set the optimum Recording Luminance Level.

Symptom of Misadjustment:
If the Record Luminance Level is too high, Video may overload.
If the Level is too Low, the S/N Ratio deteriorates.

TP	ADJ.	MODE	INPUT
TP5001 (HOT) TP5002 (GND)	VR3001	S-VHS REC/PLAY (SP)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	100+-5mVp-p	

1. Connect the oscilloscope to TP5001(HOT) and TP5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Adjust the VR3001 so that luminance level is 100+-5mVp-p.

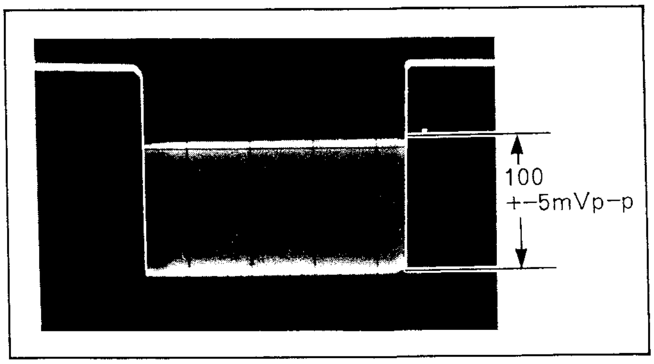


Fig. V4

8. YNR ADJUSTMENT

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency component.

Symptom of Misadjustment:
The S/N Ratio is low.

TP	ADJ.	LENS CAP	CHART
TP3003	VR3005	PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
ALIGMSNT TAPE 4822 397 30186	OSCILLO-SCOPE	SIGNAL IS MINIMIZED (LESS THAN 100mV)	

1. Play Back the Alignment tape.
2. Connect the Video output to oscilloscope.
3. Adjust VR3005 so that signal is minimized.

9. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3006	S–VHS SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
S–VHS BLACK TAPE	OSCILLO–SCOPE	A: 1.0+–0.1Vp–p	

1. Aim the camera at colour bar chart.
2. Record it for 10 min with S–VHS–C–Movie in the SP mode.
3. Connect the oscilloscope to Video out.
4. Playback the recorded signal.
5. Adjust VR3007 so that signal level is A=1.0+–0.1Vp–p.

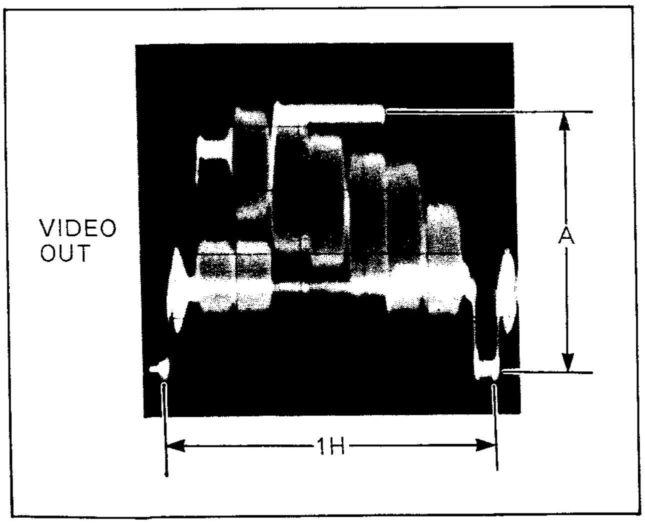


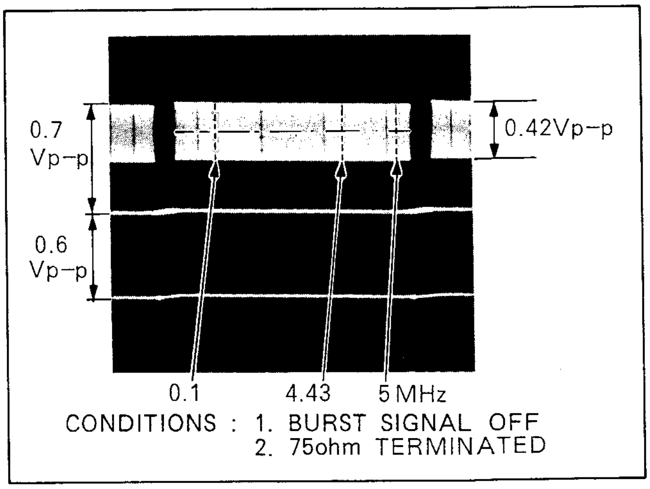
Fig. V5

10. COS EQ ADJUSTMENT

TP	ADJ.	MODE	INPUT
S–VHS LUMI OUT	VR3007	S-VHS SELF RECORDING (SP)	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A= –6±1dB (56~71%)	

Note:
Edit switch must be off.

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V6

2. Supply sweep signal to C3060.
3. Record the signal for a about ten minutes.
4. Playback the recorded signal.
5. Adjust VR3007 so that level at 4MHz is within spec. as shown in Fig.V12.

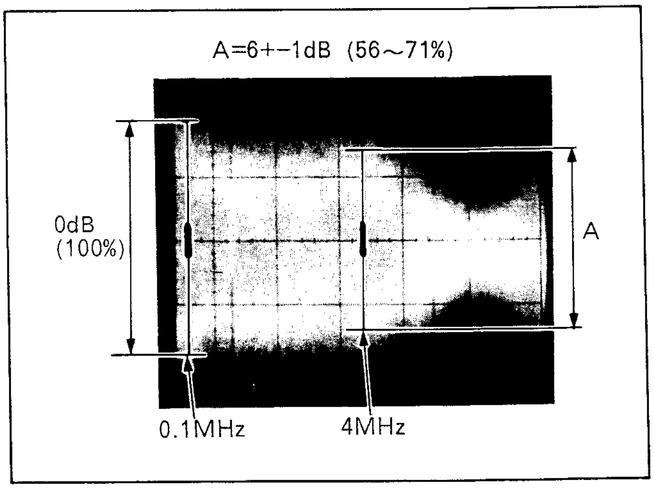


Fig. V7

11. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

Purpose:
To improve Video Frequency Response Level.

Symptom of Misadjustment:
Video Frequency Response deteriorates.
Picture is noisy.

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3008	SELF RECORDING (SP)	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A=0dB+−1dB (89∼112%)	

Note:
Edit switch must be off.

1. Set the sweep generator output as shown below.

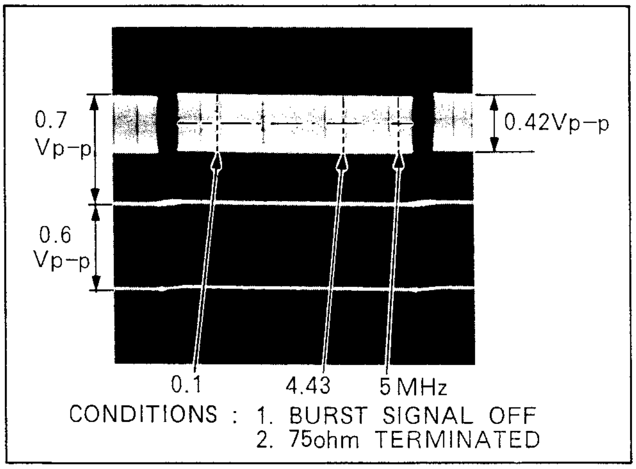


Fig. V8

2. Supply sweep signal to C3060.
3. Record the signal for ten minutes.
4. Play back the recorded signal.
5. Adjust VR3008 so that the level is within the 2MHz spec. as shown below.

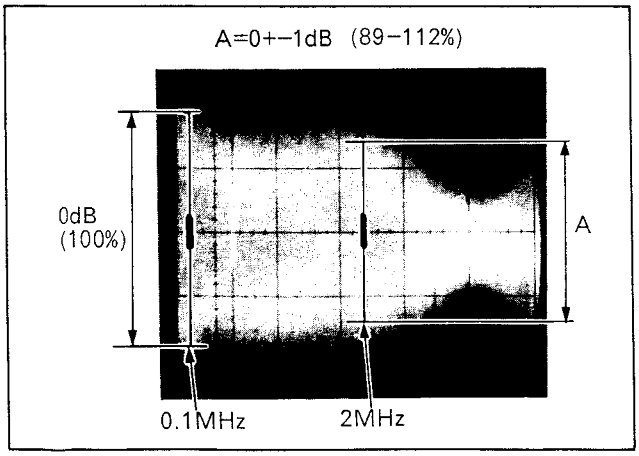


Fig. V9

AUDIO SECTION

12. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL4001 (HOT) TL4002 (GND)	VR4002	REC	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	V.T.V.M.	2.7 mVrms ± 0.1 mVrms	

13. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT	VR4001	VHS SELF RECORDING	1 kHz AUDIO −50 dB Signal/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERA−TOR/V.T.V.M.		

Note:

Audio select SW must be normal

1. Supply the audio signal (1 KHz/ −50dB sine-wave) to audio circuit through the MIC Input Jack.
2. Set the audio select SW to Normal position.
3. Adjust VR4001 so that the level is EE Level −8dB ± 0.5dB.

Hi-Fi AUDIO SECTION

14. Hi-Fi AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL5003 (HOT) TL5001 (GND)	VR4502	S-VHS RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
4822 397 30186	OSCILLO-SCOPE	200+−5mVp−p	

1. Connect the OSCILLOSCOPE to TL5003(HOT) and TL5001(GND).
2. Adjust VR4502 so that the Audio recording current is 200+−5mVp−p as shown below.

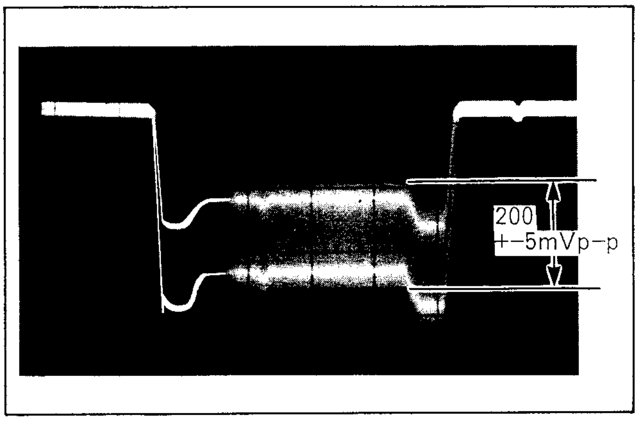


Fig. V10

15. AUDIO MUTING ADJSUTMENT

TP	ADJ.	MODE	INPUT
TP5001	VR4501	SELF RECORDING	1kHz, −10dB AUDIO SIG.
TAPE	**M. EQ.**	**SPEC.**	
4822 397 30186	SIGNAL GENERATOR/ OSCILLO-SCOPE	DC LEVEL=2V	

Note:
Tape Interchangeability Adjustment must be completed before this adjustment.

1. Playback the Alignment tape.
2. Push the tracking Button so that signal level at TP5001 becomes 18~20mVp-p.
3. Adjust VR4501 so that sound mode change to normal from Hi-Fi mode.

SYSTEM CONTROL SECTION

16. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
MONITOR TV	C6102	STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	MONITOR TV		

1. Connect the EVF unit to the VTR unit.
2. Supply the colour bar signal to C3060.
3. Adjust the C6102 so that the character position is shown below.

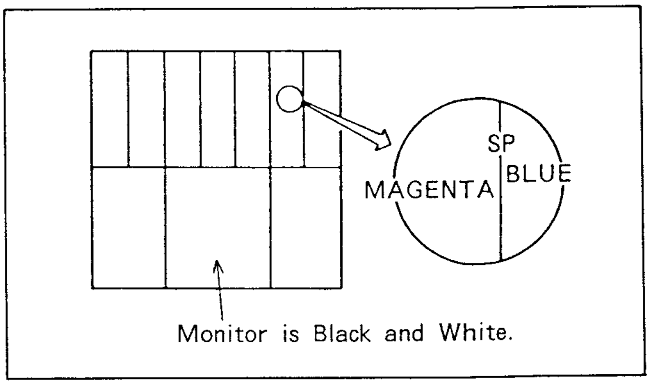


Fig. V11

17. DISPLAY MICROPROCESSOR FREQ. ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL6101	C6108	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	327680 +−1.6Hz	

1. Adjust the C6108 so the frequency counter reads 327680±1.6 Hz.

18. VITC SIGNAL LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3801	S-VHS REC • PAUSE	GRAY SCALE CHART
TAPE	**M. EQ.**	**SPEC.**	
	VITC GENERATOR/ OSCILLO-SCOPE	V/S 1.8+ −0.07 (540+ −20mVp-p)	

1. Aim the Camera at Gray Scale Chart.
2. Set the unit to S−VHS−C−Movie. Mode and set to recording mode.
3. Adjust the VR3801 so that ratio of V and S is 1.8+−0.07 as shown below.

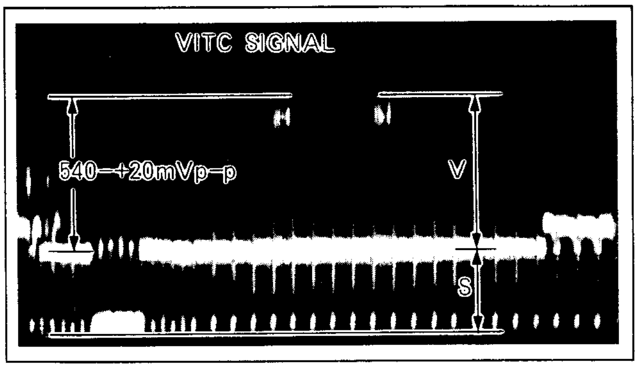


Fig. V12

19. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL6004	VR6001	REC	BATTERY TERMINAL (+) and (−)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ DC POWER SUPPLY/ D.V.M.		

Note1:

Do not connect AC Adaptor, connect a DC Power Supply to the Battery terminal (+), (−) then Supply 5.25~5.5V.

Note2:

Connect the EVF, Camera Unit and Camera Operation Unit (Side Case (R) and (L) Unit) to the VTR Unit.

1. Turn VR6001 until pulse "A" becomes nothing, (When just pulse "A" is nothing, stop it).

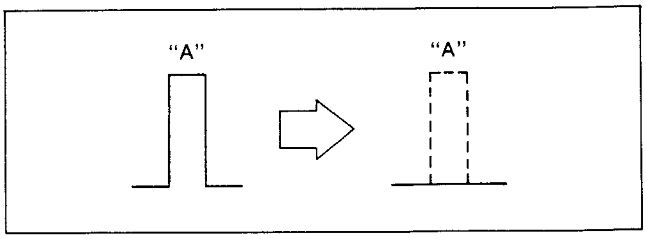
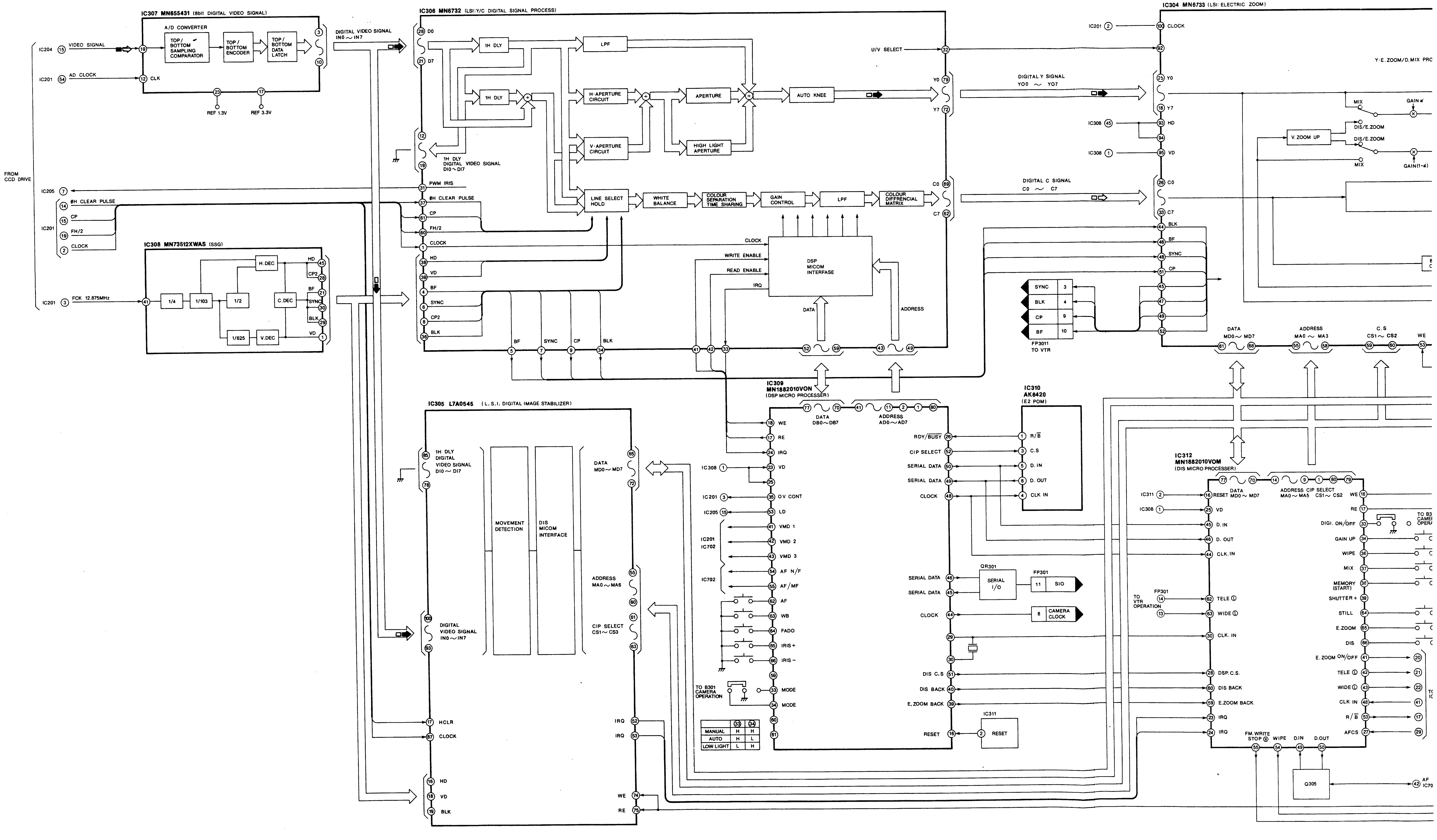


Fig. V13

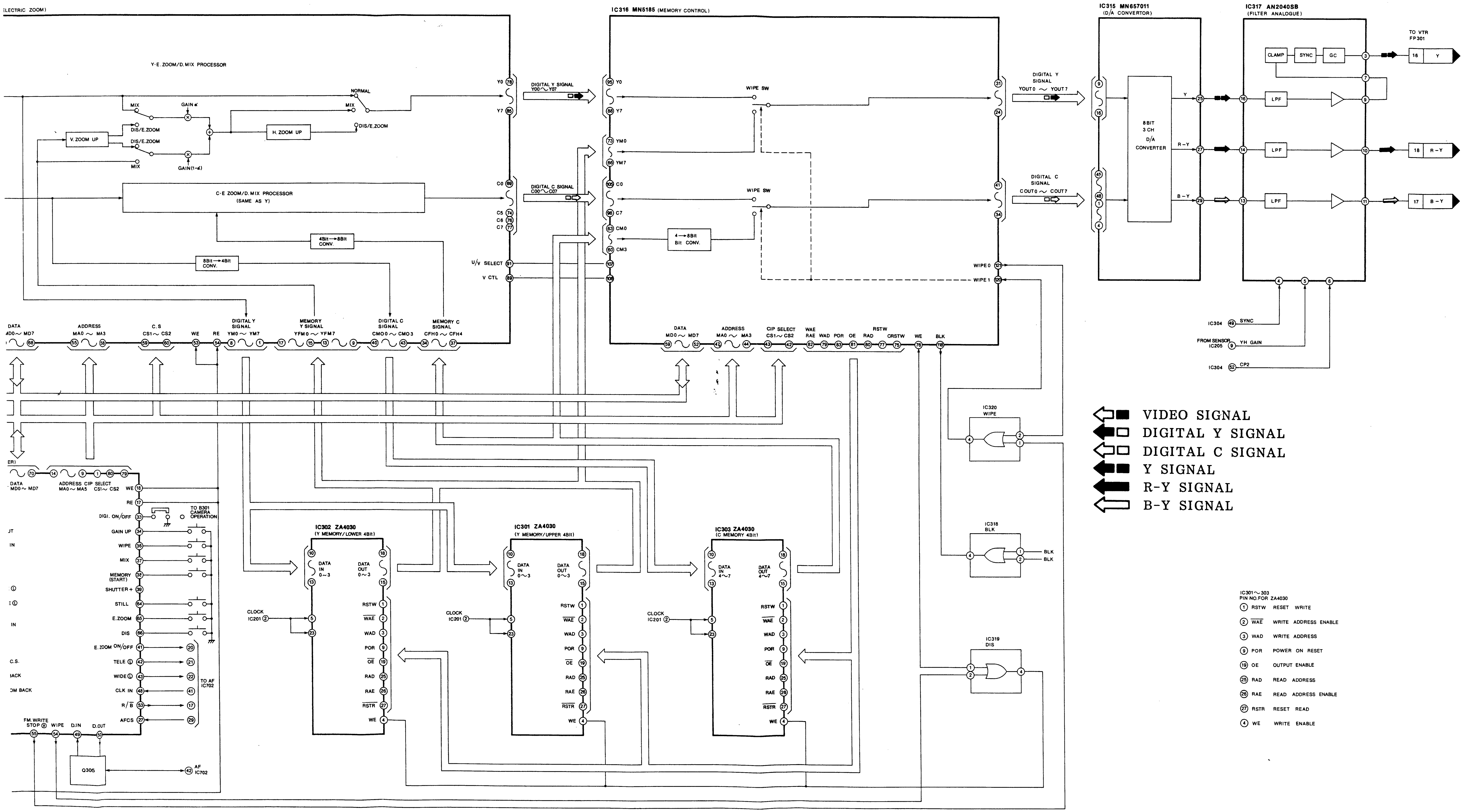
Memo

SECTION 3
BLOCK DIAGRAM & SCHEMATIC DIAGRAMS

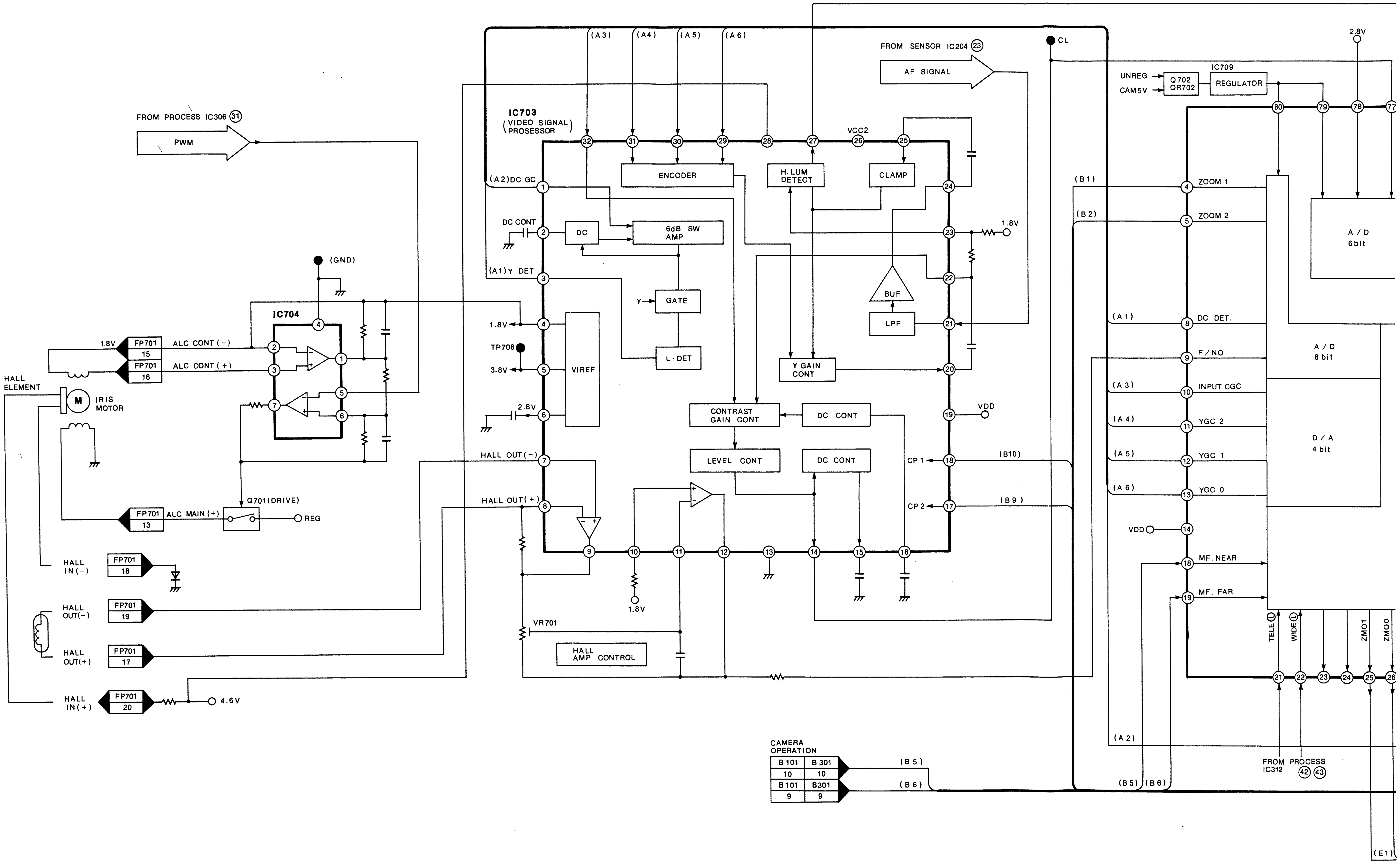
3-1. PROCESS BLOCK DIAGRAM

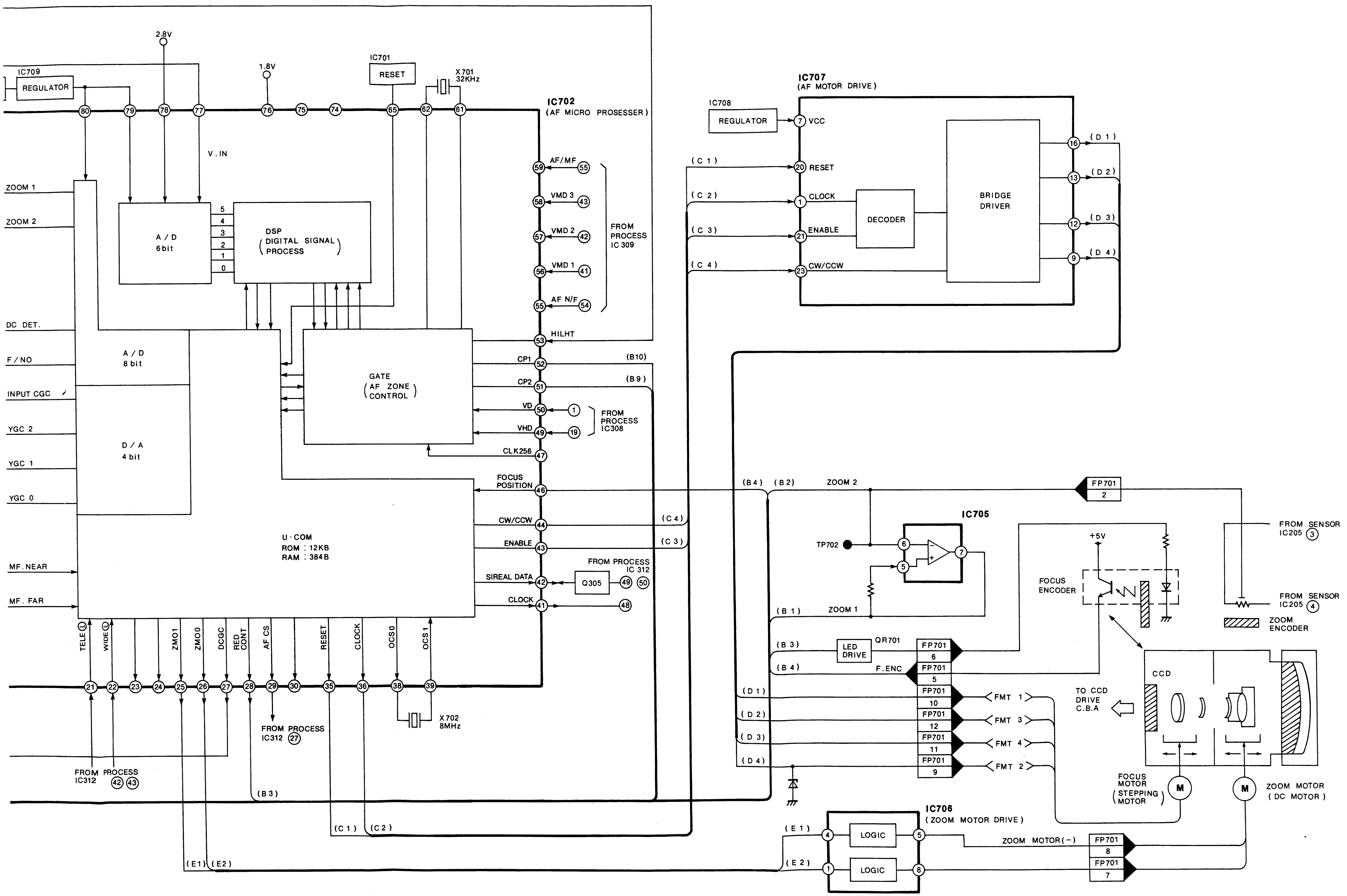

IC307 MN655431 (8bit DIGITAL VIDEO SIGNAL)
A/D CONVERTER
TOP / BOTTOM SAMPLING COMPARATOR
TOP / BOTTOM ENCODER
TOP / BOTTOM DATA LATCH
REF 1.3V
REF 3.3V
IC204 VIDEO SIGNAL
IC201 AD CLOCK
CLK
FROM CCD DRIVE
IC205
IC201
ΦH CLEAR PULSE
CP
FH/2
CLOCK
IC201 FCK 12.875MHz
IC308 MN73512XWAS (SSG)
1/4
1/103
1/2
1/625
H.DEC
C.DEC
V.DEC
HD
CP2
BF
SYNC
BLK
VD
DIGITAL VIDEO SIGNAL IN0 ~ IN7
IC306 MN6732 (LSI: Y/C DIGITAL SIGNAL PROCESS)
D0
D7
1H DLY
LPF
H-APERTURE CIRCUIT
V-APERTURE CIRCUIT
APERTURE
HIGH LIGHT APERTURE
AUTO KNEE
1H DLY DIGITAL VIDEO SIGNAL DI0 ~ DI7
PWM IRIS
LINE SELECT HOLD
WHITE BALANCE
COLOUR SEPARATION TIME SHARING
GAIN CONTROL
COLOUR DIFFRENCIAL MATRIX
U/V SELECT
Y0
Y7
C0
C7
CLOCK
WRITE ENABLE
READ ENABLE
IRQ
DSP MICOM INTERFASE
DATA
ADDRESS
IC309 MN1882010VON (DSP MICRO PROCESSER)
DATA DB0 ~ DB7
ADDRESS AD0 ~ AD7
WE
RE
IRQ
VD
OV CONT
LD
VMD 1
VMD 2
VMD 3
AF N/F
AF/MF
AF
WB
FADO
IRIS +
IRIS −
MODE
MODE
TO B301 CAMERA OPERATION
RDY/BUSY
CIP SELECT
SERIAL DATA
SERIAL DATA
CLOCK
SERIAL DATA
SERIAL DATA
CLOCK
DIS C.S
DIS BACK
E.ZOOM BACK
RESET
IC308
IC201
IC205
IC201 IC702
IC702
QR301 SERIAL I/O
FP301 SIO
CAMERA CLOCK
IC311 RESET
IC310 AK6420 (E2 POM)
R/B
C.S
D. IN
D. OUT
CLK IN
IC305 L7A0545 (L.S.I. DIGITAL IMAGE STABILIZER)
1H DLY DIGITAL VIDEO SIGNAL DI0 ~ DI7
MOVEMENT DETECTION
DIS MICOM INTERFACE
DATA MD0 ~ MD7
ADDRESS MA0 ~ MA6
CIP SELECT CS1 ~ CS3
DIGITAL VIDEO SIGNAL IN0 ~ IN7
HCLR
CLOCK
HD
VD
BLK
IRQ
IRQ
WE
RE
DIGITAL Y SIGNAL Y00 ~ Y07
DIGITAL C SIGNAL C0 ~ C7
IC304 MN6733 (LSI: ELECTRIC ZOOM)
IC201 CLOCK
Y·E.ZOOM/D.MIX PRO
Y0
Y7
IC308 HD
IC308 VD
C0
C7
BLK
BF
SYNC
CP
MIX
GAIN α
DIS/E.ZOOM
DIS/E.ZOOM
V.ZOOM UP
MIX
GAIN(1−α)
SYNC
BLK
CP
BF
FP3011 TO VTR
DATA MD0 ~ MD7
ADDRESS MA0 ~ MA3
C.S CS1 ~ CS2
WE
IC312 MN1882010VOM (DIS MICRO PROCESSER)
DATA MD0 ~ MD7
ADDRESS CIP SELECT MA0 ~ MA5 CS1 ~ CS2
IC311 RESET
IC308 VD
D. IN
D. OUT
CLK. IN
TO VTR OPERATION
FP301
TELE ①
WIDE ①
CLK. IN
DSP.C.S.
DIS BACK
E.ZOOM BACK
IRQ
IRQ
FM.WRITE STOP ⑥
WIPE
D.IN
D.OUT
Q305
WE
RE
DIGI. ON/OFF
GAIN UP
WIPE
MIX
MEMORY (START)
SHUTTER +
STILL
E.ZOOM
DIS
E. ZOOM ON/OFF
TELE ①
WIDE ①
CLK IN
R/B
AFCS
TO B3 CAMEI OPERA
AF IC70

	33	34
MANUAL	H	H
AUTO	H	L
LOW LIGHT	L	H

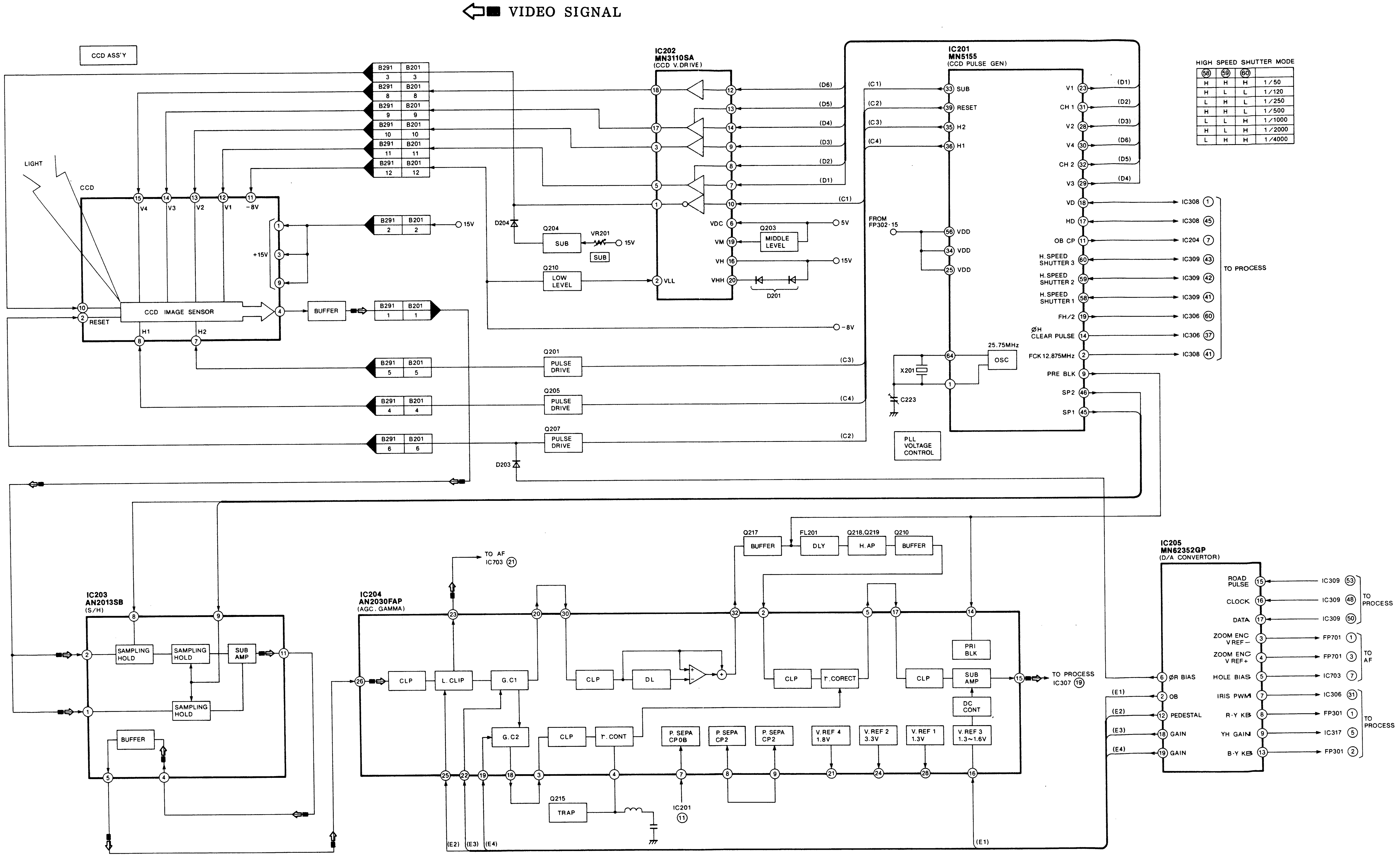

ELECTRIC ZOOM)
Y-E.ZOOM/D.MIX PROCESSOR
NORMAL
MIX
GAIN α
DIS/E.ZOOM
V.ZOOM UP
H.ZOOM UP
GAIN(1-α)
C-E ZOOM/D.MIX PROCESSOR (SAME AS Y)
4Bit→8Bit CONV.
8Bit→4Bit CONV.
Y0 78
Y7 85
C0 86
C5 74
C6 76
C7 77
U/V SELECT 91
V CTL 89
DIGITAL Y SIGNAL Y00~Y07
DIGITAL C SIGNAL C00~C07
DATA MD0~MD7 68
ADDRESS MA0~MA3 55 58
C.S CS1~CS2 59 60
WE 53
RE 54
DIGITAL Y SIGNAL YM0~YM7 8 1
MEMORY Y SIGNAL YFM0~YFM7 17 15 13 9
DIGITAL C SIGNAL CM00~CM03 40 43
MEMORY C SIGNAL CFH0~CFH4 34 37
IC316 MN5185 (MEMORY CONTROL)
95 Y0
88 Y7
73 YM0
66 YM7
C0
96 C7
63 CM0
60 CM3
107
108
WIPE SW
4→8Bit Bit CONV.
31
24
41
34
WIPE 0 121
WIPE 1 120
DATA MD0~MD7 59 52
ADDRESS MA0~MA3 42 44
CIP SELECT CS1~CS2 43 42
WAE RAE WAD POR OE RAD 82 79 83 81 80 77 75
RSTW CRSTW
WE 76
BLK 118
DIGITAL Y SIGNAL YOUT0~YOUT7
DIGITAL C SIGNAL COUT0~COUT7
IC315 MN657011 (D/A CONVERTOR)
8BIT 3CH D/A CONVERTER
Y
R-Y
B-Y
9 16 45 48 1 4
25 27 29
IC317 AN2040SB (FILTER ANALOGUE)
CLAMP
SYNC
GC
LPF
16 14 13
3 7 9 10 11
4 5 6
TO VTR FP301
16 Y
18 R-Y
17 B-Y
IC304 49 SYNC
FROM SENSOR IC205 9 YH GAIN
IC304 52 CP2
IC320 WIPE
IC318 BLK
IC319 DIS
BLK
BLK
VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
ER)
70 14 9 1 80 79
DATA MD0~MD7
ADDRESS CIP SELECT MA0~MA5 CS1~CS2
WE 18
RE 17
DIGI. ON/OFF 33
TO B301 CAMERA OPERATION
GAIN UP 34
WIPE 36
MIX 37
MEMORY (START) 38
SHUTTER+ 39
STILL 64
E.ZOOM 65
DIS 66
E.ZOOM ON/OFF 41
TELE 42
WIDE 43
CLK IN 48
R/B 53
AFCS 27
20 21 22 41 17 29
TO AF IC702
C.S.
BACK
OM BACK
FM WRITE STOP 2
WIPE
D.IN
D.OUT
55 54 49 50
Q305
AF IC702 42
IC302 ZA4030 (Y MEMORY/LOWER 4Bit)
IC301 ZA4030 (Y MEMORY/UPPER 4Bit)
IC303 ZA4030 (C MEMORY 4Bit)
DATA IN 0~3
DATA OUT 0~3
DATA IN 4~7
DATA OUT 4~7
CLOCK IC201 2
RSTW 1
WAE 2
WAD 3
POR 9
OE 19
RAD 25
RAE 26
RSTR 27
WE 4
IC301~303 PIN NO.FOR ZA4030
1 RSTW RESET WRITE
2 WAE WRITE ADDRESS ENABLE
3 WAD WRITE ADDRESS
9 POR POWER ON RESET
19 OE OUTPUT ENABLE
25 RAD READ ADDRESS
26 RAE READ ADDRESS ENABLE
27 RSTR RESET READ
4 WE WRITE ENABLE

3-2. AUTO FOCUS BLOCK DIAGRAM


FROM PROCESS IC306 ㉛
PWM
IC703
(VIDEO SIGNAL PROSESSOR)
(A3)
(A4)
(A5)
(A6)
FROM SENSOR IC204 ㉓
AF SIGNAL
CL
2.8V
IC709
UNREG
CAM5V
Q702
QR702
REGULATOR
VCC2
ENCODER
H. LUM DETECT
CLAMP
(A2)DC GC
DC CONT
DC
6dB SW AMP
1.8V
(A1)Y DET
Y
GATE
BUF
LPF
L·DET
Y GAIN CONT
VIREF
TP706
3.8V
2.8V
CONTRAST GAIN CONT
DC CONT
LEVEL CONT
DC CONT
VDD
CP1
CP2
(B10)
(B9)
HALL OUT(−)
HALL OUT(+)
1.8V
VR701
HALL AMP CONTROL
(GND)
IC704
1.8V
FP701 15
FP701 16
ALC CONT(−)
ALC CONT(+)
HALL ELEMENT
M
IRIS MOTOR
Q701(DRIVE)
FP701 13
ALC MAIN(+)
REG
HALL IN(−)
FP701 18
HALL OUT(−)
FP701 19
HALL OUT(+)
FP701 17
HALL IN(+)
FP701 20
4.6V
(B1)
(B2)
ZOOM 1
ZOOM 2
A/D 6bit
(A1)
DC DET.
F/NO
A/D 8bit
(A3)
INPUT CGC
(A4)
YGC 2
(A5)
YGC 1
(A6)
YGC 0
D/A 4bit
VDD
MF. NEAR
MF. FAR
TELE ①
WIDE ①
ZMO1
ZMO0
(A2)
FROM PROCESS IC312 ㊷ ㊸
(B5)
(B6)
CAMERA OPERATION
B101 10
B301 10
B101 9
B301 9
(B5)
(B6)
(E1)


IC709
REGULATOR
2.8V
1.8V
IC701
RESET
X701
32KHz
IC702
(AF MICRO PROSESSER)
V.IN
ZOOM 1
ZOOM 2
A/D
6bit
DSP
(DIGITAL SIGNAL PROCESS)
AF/MF
VMD 3
VMD 2
VMD 1
AF N/F
FROM PROCESS IC 309
HILHT
DC DET.
F/NO
INPUT CGC
YGC 2
YGC 1
YGC 0
A/D
8 bit
D/A
4 bit
GATE
(AF ZONE CONTROL)
CP1
CP2
(B10)
(B9)
VD
VHD
FROM PROCESS IC308
CLK256
FOCUS POSITION
U-COM
ROM : 12KB
RAM : 384B
CW/CCW
ENABLE
SIREAL DATA
CLOCK
FROM PROCESS IC 312
Q305
(C4)
(C3)
MF. NEAR
MF. FAR
TELE Ⓛ
WIDE Ⓛ
ZMO1
ZMO0
DCGC
RED CONT
AF CS
RESET
CLOCK
OCS0
OCS1
FROM PROCESS IC312 ㉗
X702
8MHz
FROM PROCESS IC312 ㊷ ㊸
(B3)
(C1)
(C2)
(E1)
(E2)
IC707
(AF MOTOR DRIVE)
IC708
REGULATOR
VCC
RESET
CLOCK
ENABLE
CW/CCW
DECODER
BRIDGE DRIVER
(D1)
(D2)
(D3)
(D4)
(B4)
(B2)
ZOOM 2
FP701
2
IC705
TP702
(B1)
ZOOM 1
+5V
FOCUS ENCODER
FROM SENSOR IC205 ③
FROM SENSOR IC205 ④
ZOOM ENCODER
LED DRIVE
QR701
FP701
6
F.ENC
5
10
12
11
9
FMT 1
FMT 3
FMT 4
FMT 2
CCD
TO CCD DRIVE C.B.A
FOCUS MOTOR (STEPPING MOTOR)
M
ZOOM MOTOR (DC MOTOR)
IC706
(ZOOM MOTOR DRIVE)
LOGIC
LOGIC
ZOOM MOTOR(-)
8
7

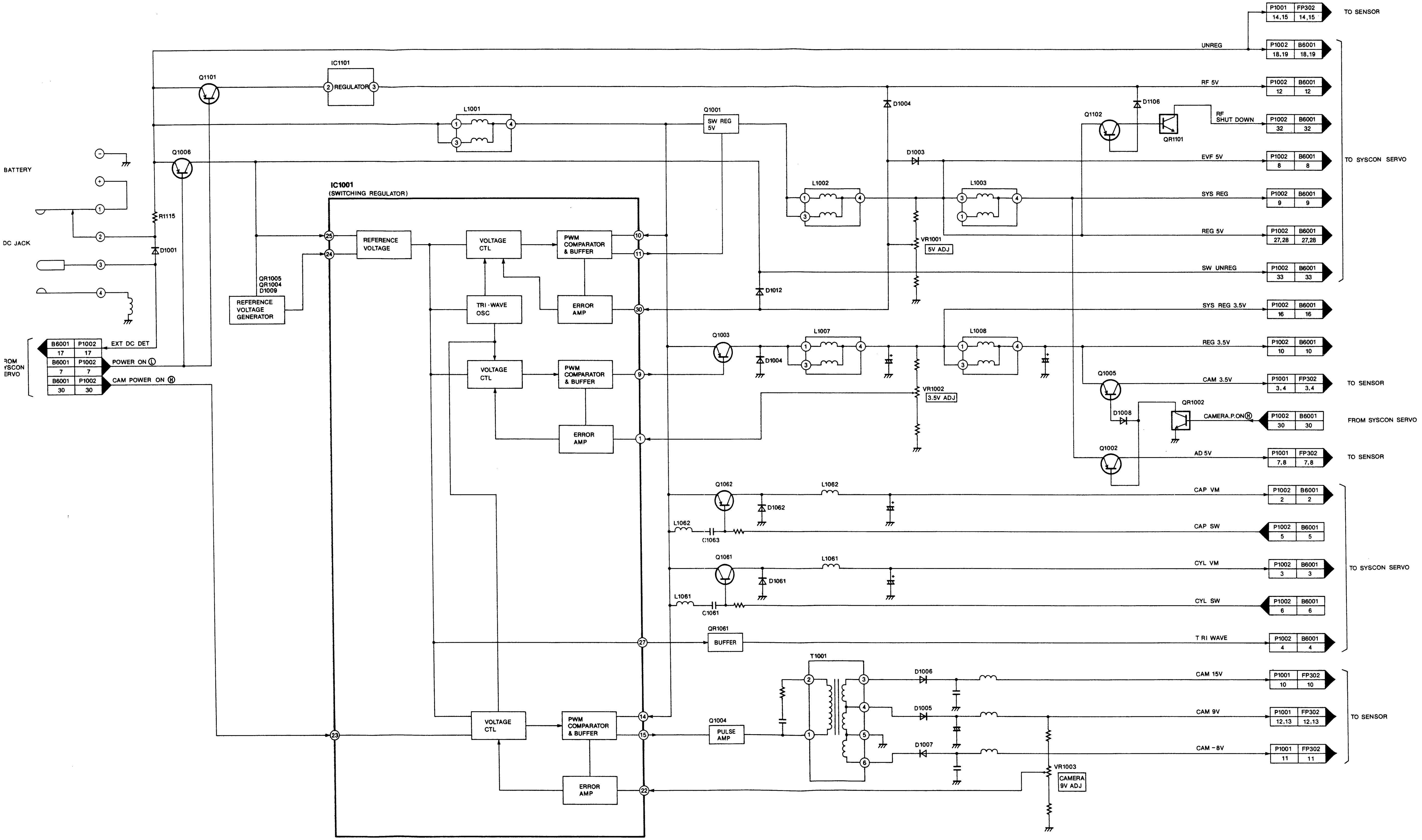
3-3. CCD DRIVE BLOCK DIAGRAM


VIDEO SIGNAL
CCD ASS'Y
LIGHT
CCD
CCD IMAGE SENSOR
V4
V3
V2
V1
-8V
+15V
RESET
H1
H2
BUFFER
B291
B201
15V
D204
D203
Q204
SUB
VR201
SUB
Q210
LOW LEVEL
Q201
PULSE DRIVE
Q205
PULSE DRIVE
Q207
PULSE DRIVE
-8V
IC202
MN3110SA
(CCD V.DRIVE)
VDC
VM
VH
VHH
VLL
Q203
MIDDLE LEVEL
D201
5V
15V
(D1)
(D2)
(D3)
(D4)
(D5)
(D6)
(C1)
(C2)
(C3)
(C4)
IC201
MN5155
(CCD PULSE GEN)
SUB
RESET
H2
H1
FROM FP302·15
VDD
VDD
VDD
25.75MHz
OSC
X201
C223
PLL VOLTAGE CONTROL
V1
CH 1
V2
V4
CH 2
V3
VD
HD
OB CP
H.SPEED SHUTTER 3
H.SPEED SHUTTER 2
H.SPEED SHUTTER 1
FH/2
ØH CLEAR PULSE
FCK 12.875MHz
PRE BLK
SP2
SP1
IC308 ①
IC308 ㊺
IC204 ⑦
IC309 ㊸
IC309 ㊷
IC309 ㊶
IC306 ⑥⓪
IC306 ㊲
IC308 ㊶
TO PROCESS
IC203
AN2013SB
(S/H)
SAMPLING HOLD
SAMPLING HOLD
SAMPLING HOLD
SUB AMP
BUFFER
TO AF
IC703 ㉑
IC204
AN2030FAP
(AGC, GAMMA)
CLP
L. CLIP
G.C1
G.C2
CLP
Γ. CONT
CLP
DL
Q215
TRAP
IC201 ⑪
P. SEPA CP0B
P. SEPA CP2
P. SEPA CP2
V.REF 4 1.8V
V.REF 2 3.3V
V.REF 1 1.3V
V.REF 3 1.3~1.6V
(E1)
(E2)
(E3)
(E4)
Q217
BUFFER
FL201
DLY
Q218,Q219
H.AP
Q210
BUFFER
CLP
Γ.CORECT
CLP
PRI BLK
SUB AMP
DC CONT
TO PROCESS
IC307 ⑲
IC205
MN62352GP
(D/A CONVERTOR)
ØR BIAS
OB
PEDESTAL
GAIN
GAIN
ROAD PULSE
CLOCK
DATA
ZOOM ENC V REF−
ZOOM ENC V REF+
HOLE BIAS
IRIS PWM
R·Y KB
YH GAIN
B·Y KB
IC309 ㊼
IC309 ㊽
IC309 ㊿
TO PROCESS
FP701 ①
FP701 ③
IC703 ⑦
TO AF
IC306 ㉛
FP301 ①
IC317 ⑤
FP301 ②
TO PROCESS

HIGH SPEED SHUTTER MODE

㊽	㊾	⑥⓪	
H	H	H	1/50
H	L	L	1/120
L	H	L	1/250
H	H	L	1/500
L	L	H	1/1000
H	L	H	1/2000
L	H	H	1/4000

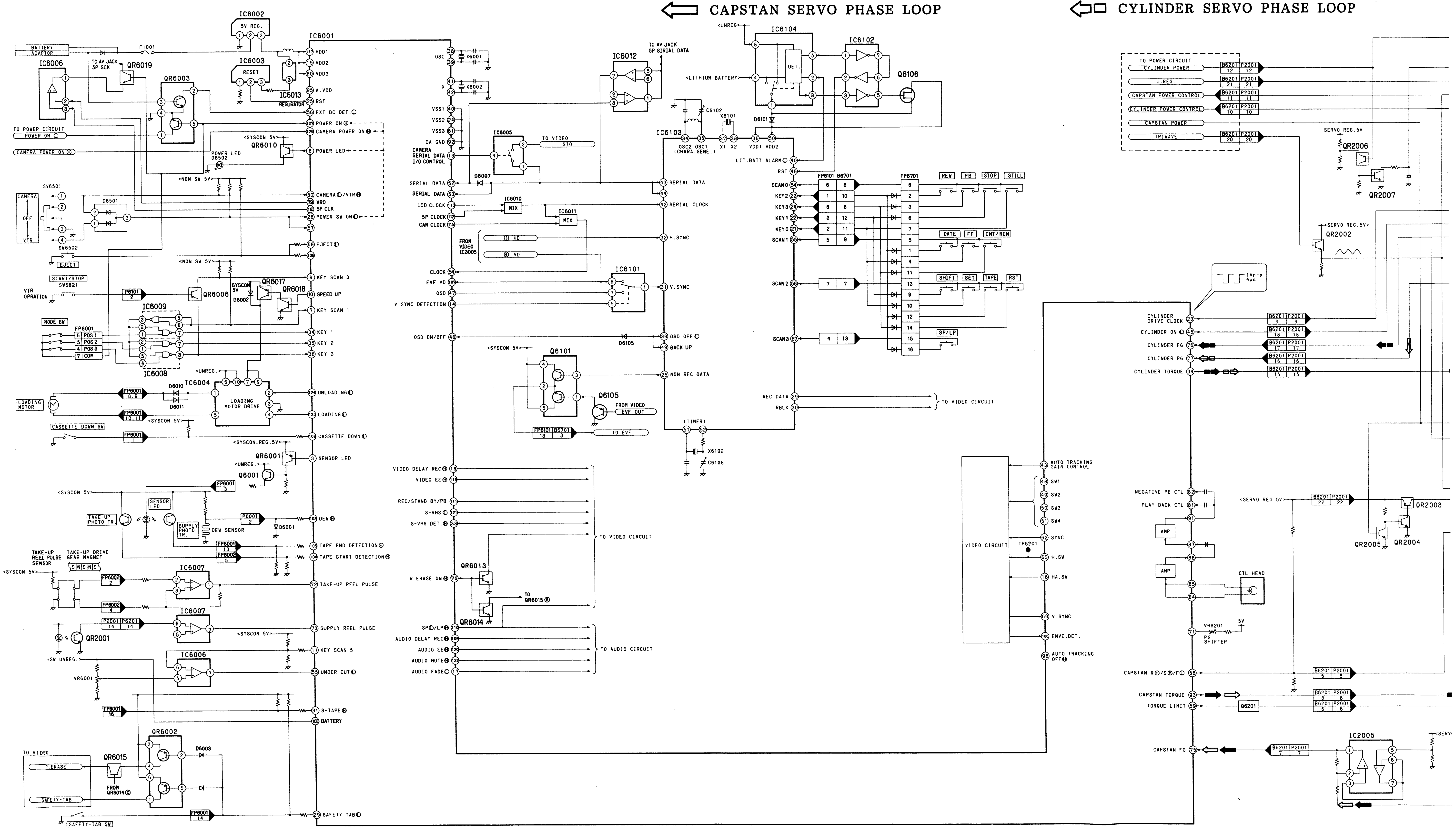
-4. POWER BLOCK DIAGRAM


BATTERY
DC JACK
R1115
D1001
Q1101
Q1006
IC1101
REGULATOR
L1001
Q1001
SW REG 5V
D1004
D1003
D1106
Q1102
QR1101
RF SHUT DOWN
IC1001
(SWITCHING REGULATOR)
REFERENCE VOLTAGE
VOLTAGE CTL
PWM COMPARATOR & BUFFER
TRI-WAVE OSC
ERROR AMP
QR1005
QR1004
D1009
REFERENCE VOLTAGE GENERATOR
L1002
L1003
VR1001
5V ADJ
D1012
Q1003
L1007
L1008
VR1002
3.5V ADJ
Q1005
QR1002
D1008
Q1002
Q1062
D1062
L1062
C1063
Q1061
D1061
L1061
C1061
QR1061
BUFFER
T1001
Q1004
PULSE AMP
D1006
D1005
D1007
VR1003
CAMERA 9V ADJ
ROM
YSCON
ERVO
EXT DC DET
POWER ON Ⓛ
CAM POWER ON Ⓗ
B6001 P1002 17 17
B6001 P1002 7 7
B6001 P1002 30 30
UNREG
RF 5V
EVF 5V
SYS REG
REG 5V
SW UNREG
SYS REG 3.5V
REG 3.5V
CAM 3.5V
CAMERA.P.ON Ⓗ
AD 5V
CAP VM
CAP SW
CYL VM
CYL SW
TRI WAVE
CAM 15V
CAM 9V
CAM -8V
P1001 FP302 14,15 14,15
P1002 B6001 18,19 18,19
P1002 B6001 12 12
P1002 B6001 32 32
P1002 B6001 8 8
P1002 B6001 9 9
P1002 B6001 27,28 27,28
P1002 B6001 33 33
P1002 B6001 16 16
P1002 B6001 10 10
P1001 FP302 3,4 3,4
P1002 B6001 30 30
P1001 FP302 7,8 7,8
P1002 B6001 2 2
P1002 B6001 5 5
P1002 B6001 3 3
P1002 B6001 6 6
P1002 B6001 4 4
P1001 FP302 10 10
P1001 FP302 12,13 12,13
P1001 FP302 11 11
TO SENSOR
TO SYSCON SERVO
TO SENSOR
FROM SYSCON SERVO
TO SENSOR
TO SYSCON SERVO
TO SENSOR

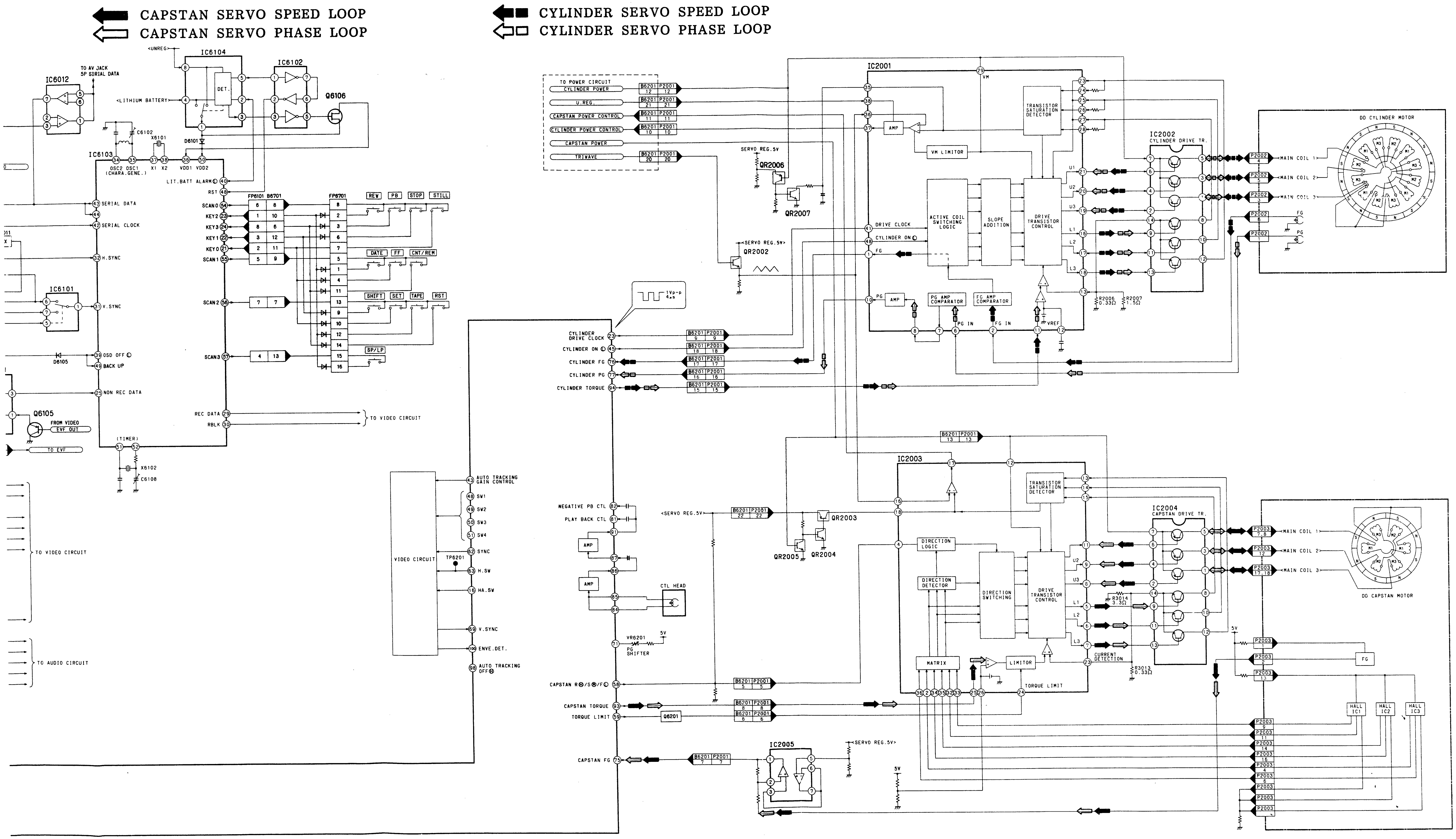
3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM

⬅ CAPSTAN SERVO SPEED LOOP
⇦ CAPSTAN SERVO PHASE LOOP

⬅■ CYLINDER SERVO SPEED LOOP
⇦□ CYLINDER SERVO PHASE LOOP

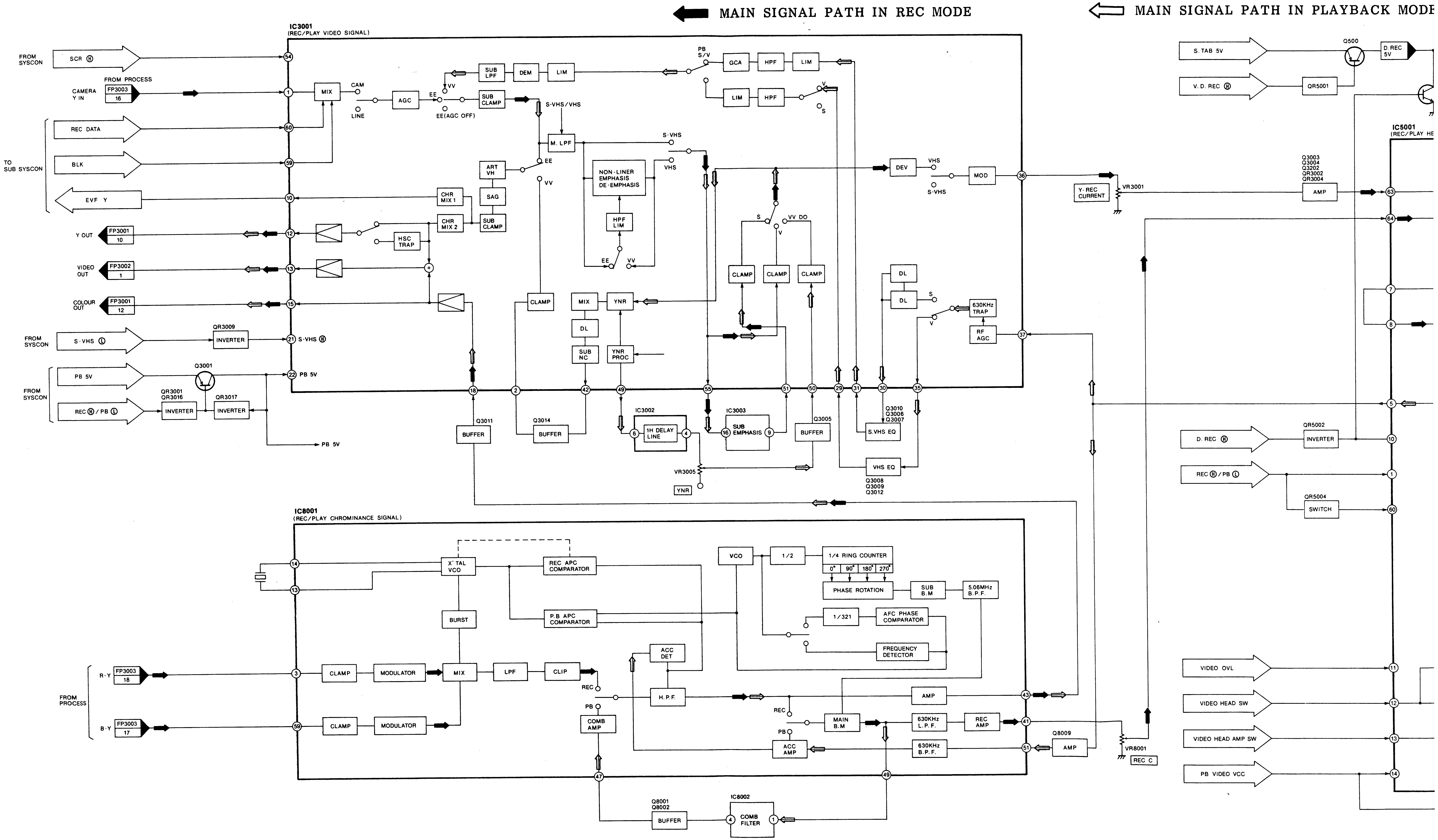


IC6002
5V REG.
BATTERY ADAPTOR
F1001
IC6006
TO AV JACK 5P SCK
QR6019
IC6003
RESET
IC6013
REGURATOR
QR6003
IC6001
VDD1
VDD2
VDD3
A.VDD
RST
EXT DC DET.
POWER ON
CAMERA POWER ON
POWER LED
TO POWER CIRCUIT
POWER ON
CAMERA POWER ON
<SYSCON 5V>
QR6010
POWER LED D6502
<NON SW 5V>
SW6501
CAMERA
OFF
VTR
D6501
CAMERA/VTR
VRO
5P CLK
POWER SW ON
EJECT
SW6502
EJECT
START/STOP SW6821
VTR OPRATION
P6101
QR6006
SYSCON 5V
D6002
QR6017
QR6018
KEY SCAN 3
SPEED UP
KEY SCAN 1
IC6009
MODE SW
FP6001
POS 1
POS 2
POS 3
COM
KEY 1
KEY 2
KEY 3
IC6008
<UNREG.>
D6010
IC6004
D6011
LOADING MOTOR DRIVE
LOADING MOTOR
UNLOADING
LOADING
CASSETTE DOWN SW
CASSETTE DOWN
<SYSCON.REG.5V>
QR6001
SENSOR LED
Q6001
<SYSCON 5V>
SENSOR LED
TAKE-UP PHOTO TR.
SUPPLY PHOTO TR.
DEW SENSOR
D6001
DEW
TAPE END DETECTION
TAPE START DETECTION
TAKE-UP REEL PULSE SENSOR
TAKE-UP DRIVE GEAR MAGNET
IC6007
TAKE-UP REEL PULSE
P2001
P6201
QR2001
SUPPLY REEL PULSE
KEY SCAN 5
<SW UNREG.>
VR6001
UNDER CUT
S-TAPE
BATTERY
QR6002
D6003
TO VIDEO
R.ERASE
QR6015
FROM QR6014
SAFETY-TAB
SAFETY-TAB SW
SAFETY TAB
OSC
X6001
X6002
VSS1
VSS2
VSS3
DA GND
CAMERA SERIAL DATA I/O CONTROL
IC6005
TO VIDEO SIO
D6007
SERIAL DATA
SERIAL DATA
LCD CLOCK
5P CLOCK
CAM CLOCK
IC6010 MIX
IC6011 MIX
FROM VIDEO IC3005
HD
VD
CLOCK
EVF VD
OSD
V.SYNC DETECTION
IC6101
OSD ON/OFF
D6105
Q6101
Q6105
FROM VIDEO EVF OUT
FP6101
B6701
TO EVF
VIDEO DELAY REC
VIDEO EE
REC/STAND BY/PB
S-VHS
S-VHS DET.
TO VIDEO CIRCUIT
QR6013
R ERASE ON
TO QR6015
QR6014
SP/LP
AUDIO DELAY REC
AUDIO EE
AUDIO MUTE
AUDIO FADE
TO AUDIO CIRCUIT
IC6012
TO AV JACK 5P SIRIAL DATA
<LITHIUM BATTERY>
IC6104
DET.
IC6102
Q6106
D6101
C6102
X6101
IC6103
OSC2 OSC1 (CHARA.GENE.)
X1 X2
VDD1 VDD2
LIT.BATT ALARM
RST
SERIAL DATA
SERIAL CLOCK
H.SYNC
V.SYNC
OSD OFF
BACK UP
NON REC DATA
REC DATA
RBLK
TO VIDEO CIRCUIT
(TIMER)
X6102
C6108
SCAN0
KEY2
KEY3
KEY1
KEY0
SCAN1
SCAN2
SCAN3
FP6701
REW
PB
STOP
STILL
DATE
FF
CNT/REM
SHIFT
SET
TAPE
RST
SP/LP
VIDEO CIRCUIT
TP6201
AUTO TRACKING GAIN CONTROL
SW1
SW2
SW3
SW4
SYNC
H.SW
HA.SW
V.SYNC
ENVE.DET.
AUTO TRACKING OFF
TO POWER CIRCUIT
CYLINDER POWER
U.REG.
CAPSTAN POWER CONTROL
CYLINDER POWER CONTROL
CAPSTAN POWER
TRIWAVE
B6201
P2001
SERVO REG.5V
QR2006
QR2007
<SERVO REG.5V>
QR2002
1Vp-p 4μs
CYLINDER DRIVE CLOCK
CYLINDER ON
CYLINDER FG
CYLINDER PG
CYLINDER TORQUE
NEGATIVE PB CTL
PLAY BACK CTL
<SERVO REG.5V>
QR2003
QR2005
QR2004
AMP
AMP
CTL HEAD
VR6201
5V
PG SHIFTER
CAPSTAN R/S/F
CAPSTAN TORQUE
TORQUE LIMIT
Q6201
CAPSTAN FG
IC2005
<SERV

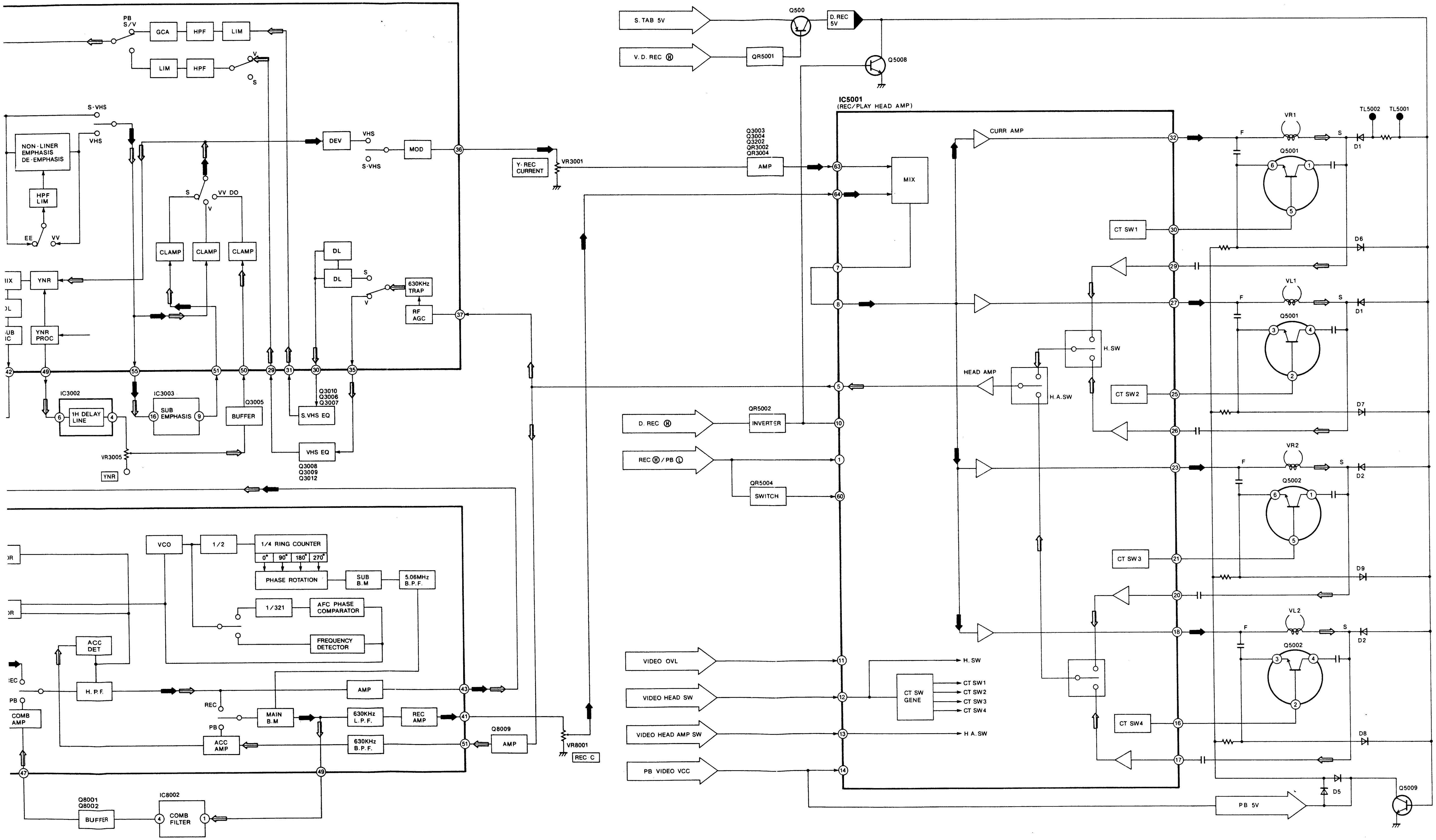

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
IC6012
IC6104
IC6102
IC6103
(CHARA.GENE.)
IC6101
Q6106
Q6105
D6101
D6105
X6101
X6102
C6102
C6108
<UNREG>
<LITHIUM BATTERY>
DET.
TO AV JACK 5P SERIAL DATA
OSC2 OSC1 X1 X2 VDD1 VDD2
LIT.BATT ALARM
RST
SERIAL DATA
SERIAL CLOCK
H.SYNC
V.SYNC
OSD OFF
BACK UP
NON REC DATA
FROM VIDEO EVF OUT
TO EVF
(TIMER)
SCAN0
KEY2
KEY3
KEY1
KEY0
SCAN1
SCAN2
SCAN3
FP6101 B6701
FP6701
REV
PB
STOP
STILL
DATE
FF
CNT/REM
SHIFT
SET
TAPE
RST
SP/LP
REC DATA
RBLK
TO VIDEO CIRCUIT
TO AUDIO CIRCUIT
TO POWER CIRCUIT
CYLINDER POWER
U.REG.
CAPSTAN POWER CONTROL
CYLINDER POWER CONTROL
CAPSTAN POWER
TRIWAVE
B6201 P2001
SERVO REG.5V
QR2006
QR2007
QR2002
1Vp-p 4µs
CYLINDER DRIVE CLOCK
CYLINDER ON
CYLINDER FG
CYLINDER PG
CYLINDER TORQUE
VIDEO CIRCUIT
TP6201
AUTO TRACKING GAIN CONTROL
SW1
SW2
SW3
SW4
SYNC
H.SW
HA.SW
V.SYNC
ENVE.DET.
AUTO TRACKING OFF
NEGATIVE PB CTL
PLAY BACK CTL
AMP
CTL HEAD
VR6201
PG SHIFTER
5V
CAPSTAN R/S/F
CAPSTAN TORQUE
TORQUE LIMIT
Q6201
CAPSTAN FG
IC2005
IC2001
VM
TRANSISTOR SATURATION DETECTOR
VM LIMITOR
ACTIVE COIL SWITCHING LOGIC
SLOPE ADDITION
DRIVE TRANSISTOR CONTROL
DRIVE CLOCK
PG
FG
PG AMP COMPARATOR
FG AMP COMPARATOR
PG IN
FG IN
VREF
U1
U2
U3
L1
L2
L3
R2006 0.33Ω
R2007 1.5Ω
IC2002 CYLINDER DRIVE TR.
P2002
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
DD CYLINDER MOTOR
IC2003
QR2003
QR2004
QR2005
DIRECTION LOGIC
DIRECTION DETECTOR
DIRECTION SWITCHING
MATRIX
LIMITOR
CURRENT DETECTION
R3013 0.33Ω
R3014 3.3Ω
IC2004 CAPSTAN DRIVE TR.
P2003
DD CAPSTAN MOTOR
HALL IC1
HALL IC2
HALL IC3

Next Page:
LUMINANCE & CHROMINANCE Section

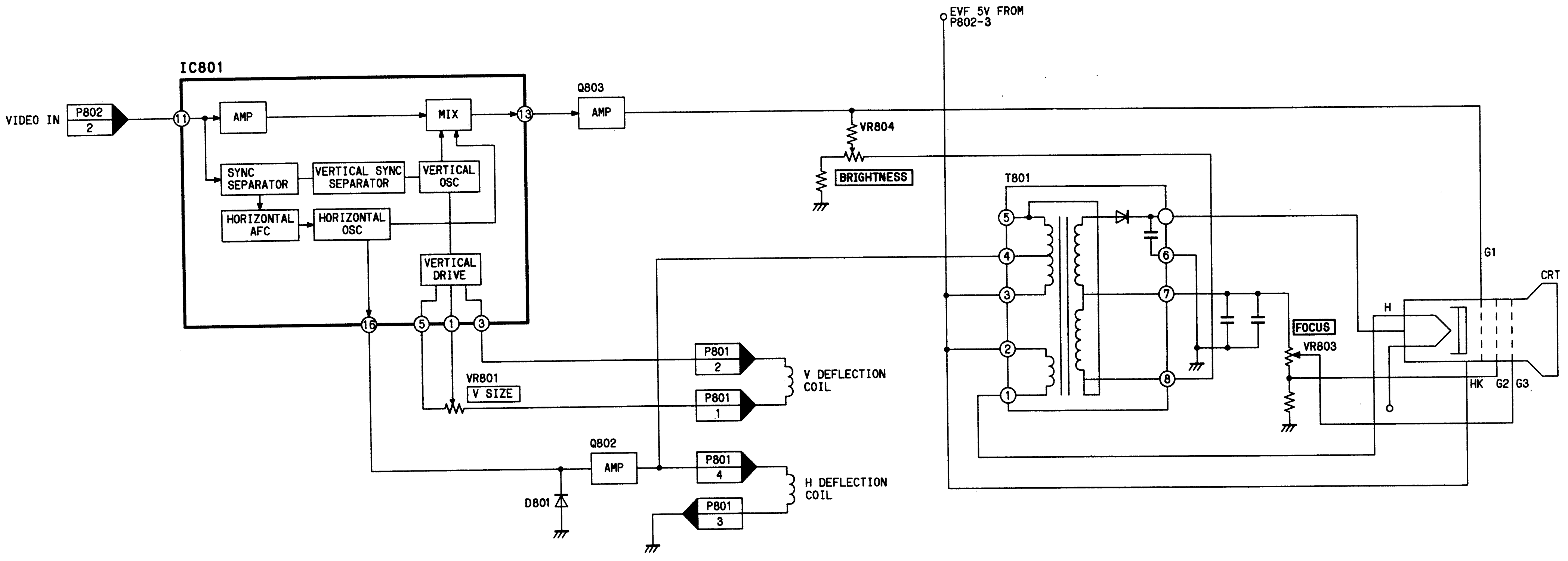
3-6. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC3001
(REC/PLAY VIDEO SIGNAL)
FROM SYSCON
SCR Ⓗ
FROM PROCESS
CAMERA Y IN
FP3003
16
TO SUB SYSCON
REC DATA
BLK
EVF Y
Y OUT
FP3001
10
VIDEO OUT
FP3002
1
COLOUR OUT
FP3001
12
FROM SYSCON
S-VHS Ⓛ
QR3009
INVERTER
S-VHS Ⓗ
FROM SYSCON
PB 5V
Q3001
QR3001
QR3016
REC Ⓗ / PB Ⓛ
INVERTER
QR3017
INVERTER
PB 5V
MIX
CAM
LINE
AGC
EE
VV
EE(AGC OFF)
SUB LPF
DEM
LIM
SUB CLAMP
S-VHS/VHS
PB S/V
GCA
HPF
LIM
LIM
HPF
V
S
M. LPF
S-VHS
VHS
ART VH
EE
VV
SAG
CHR MIX 1
CHR MIX 2
SUB CLAMP
HSC TRAP
NON-LINER EMPHASIS DE-EMPHASIS
HPF LIM
EE
VV
DEV
VHS
S-VHS
MOD
S
VV DO
V
CLAMP
CLAMP
CLAMP
DL
DL
S
V
630KHz TRAP
RF AGC
CLAMP
MIX
YNR
DL
SUB NC
YNR PROC
Q3011
BUFFER
Q3014
BUFFER
IC3002
1H DELAY LINE
VR3005
YNR
IC3003
SUB EMPHASIS
Q3005
BUFFER
Q3010
Q3006
Q3007
S.VHS EQ
VHS EQ
Q3008
Q3009
Q3012
Y-REC CURRENT
VR3001
S. TAB 5V
Q500
D.REC 5V
V. D. REC Ⓗ
QR5001
IC5001
(REC/PLAY HE
Q3003
Q3004
Q3202
QR3002
QR3004
AMP
D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ / PB Ⓛ
QR5004
SWITCH
IC8001
(REC/PLAY CHROMINANCE SIGNAL)
X' TAL VCO
REC APC COMPARATOR
BURST
P.B APC COMPARATOR
VCO
1/2
1/4 RING COUNTER
0° 90° 180° 270°
PHASE ROTATION
SUB B.M
5.06MHz B.P.F.
1/321
AFC PHASE COMPARATOR
FREQUENCY DETECTOR
ACC DET
FROM PROCESS
R-Y
FP3003
18
B-Y
FP3003
17
CLAMP
MODULATOR
MIX
LPF
CLIP
REC
PB
COMB AMP
H.P.F.
AMP
REC
MAIN B.M
630KHz L.P.F.
REC AMP
PB
ACC AMP
630KHz B.P.F.
Q8009
AMP
VR8001
REC C
Q8001
Q8002
BUFFER
IC8002
COMB FILTER
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC

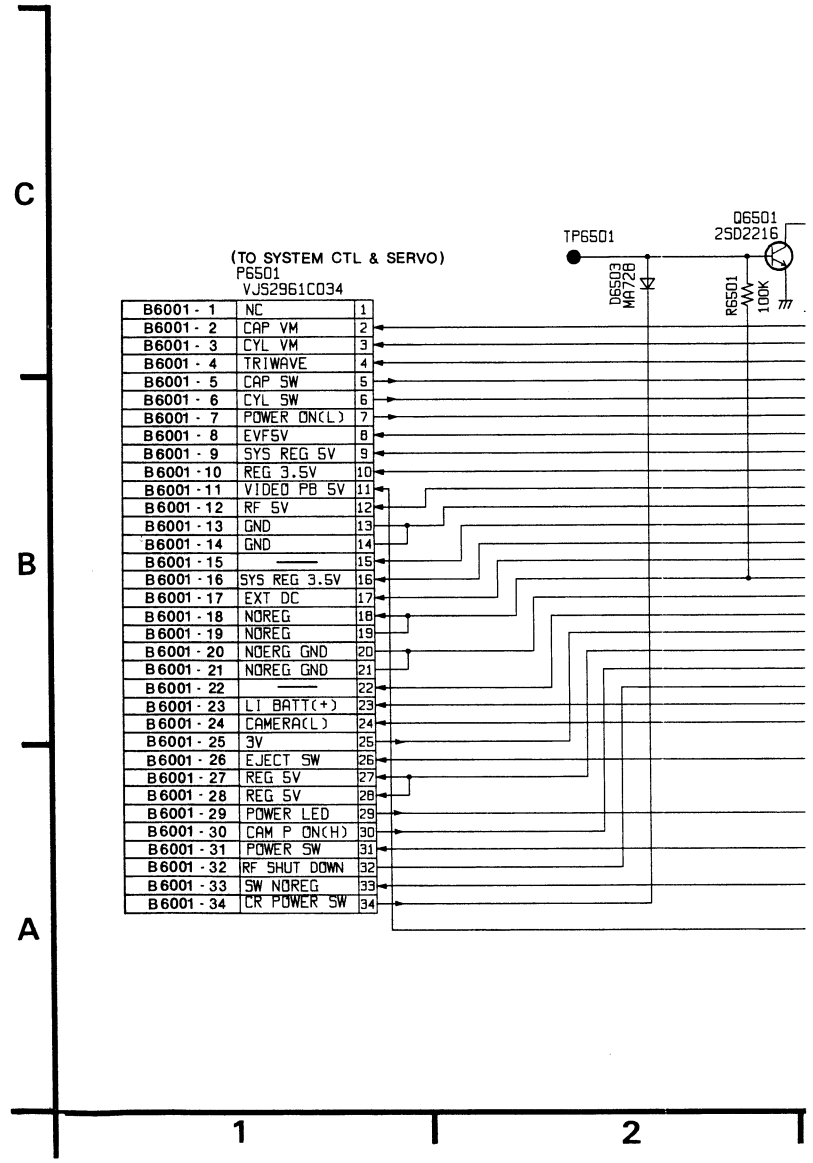
⬅ MAIN SIGNAL PATH IN REC MODE ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE


PB
S/V
GCA
HPF
LIM
LIM
HPF
V
S
S·VHS
NON·LINER EMPHASIS DE·EMPHASIS
VHS
HPF LIM
EE
VV
DEV
VHS
S·VHS
MOD
S
VV DO
V
CLAMP
CLAMP
CLAMP
DL
DL
S
630KHz TRAP
V
RF AGC
YNR
YNR PROC
IC3002
1H DELAY LINE
IC3003
SUB EMPHASIS
Q3005
BUFFER
Q3010
Q3006
Q3007
S.VHS EQ
VHS EQ
Q3008
Q3009
Q3012
VR3005
YNR
VCO
1/2
1/4 RING COUNTER
0°
90°
180°
270°
PHASE ROTATION
SUB B.M
5.06MHz B.P.F.
1/321
AFC PHASE COMPARATOR
FREQUENCY DETECTOR
ACC DET
H.P.F.
AMP
REC
MAIN B.M
630KHz L.P.F.
REC AMP
PB
ACC AMP
630KHz B.P.F.
Q8009
AMP
VR8001
REC C
COMB AMP
Q8001
Q8002
BUFFER
IC8002
COMB FILTER
Y·REC CURRENT
VR3001
S. TAB 5V
V. D. REC Ⓗ
Q500
D. REC 5V
QR5001
Q5008
IC5001
(REC/PLAY HEAD AMP)
Q3003
Q3004
Q3202
QR3002
QR3004
AMP
MIX
CURR AMP
HEAD AMP
H. SW
H. A. SW
CT SW1
CT SW2
CT SW3
CT SW4
D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ / PB Ⓛ
QR5004
SWITCH
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC
CT SW GENE
H. SW
CT SW1
CT SW2
CT SW3
CT SW4
H A. SW
TL5002
TL5001
VR1
VL1
VR2
VL2
F
S
D1
D2
D5
D6
D7
D8
D9
Q5001
Q5002
Q5009
PB 5V

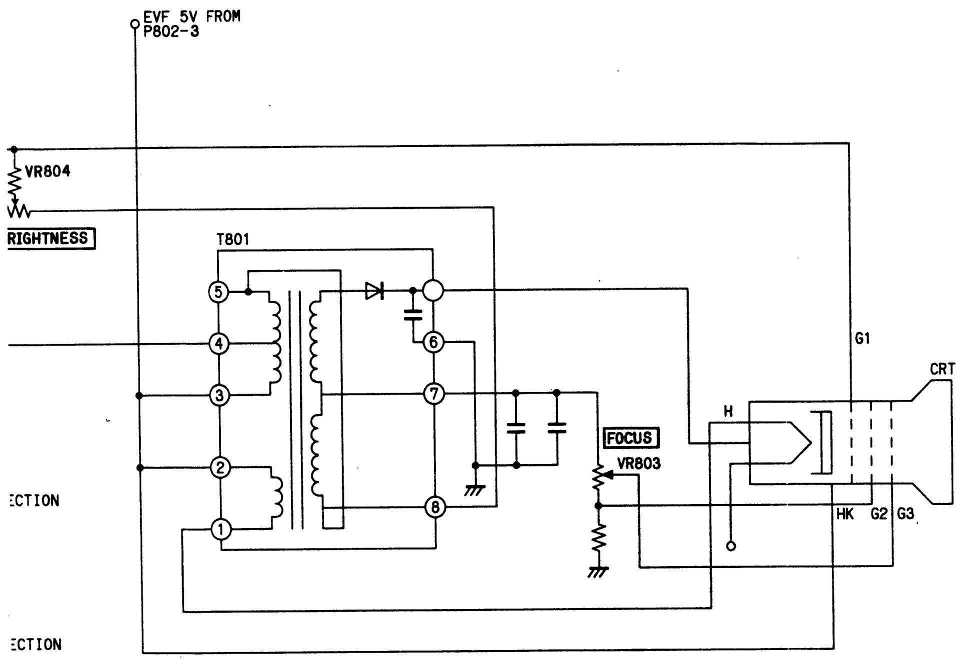
3-7. EVF BLOCK DIAGRAM

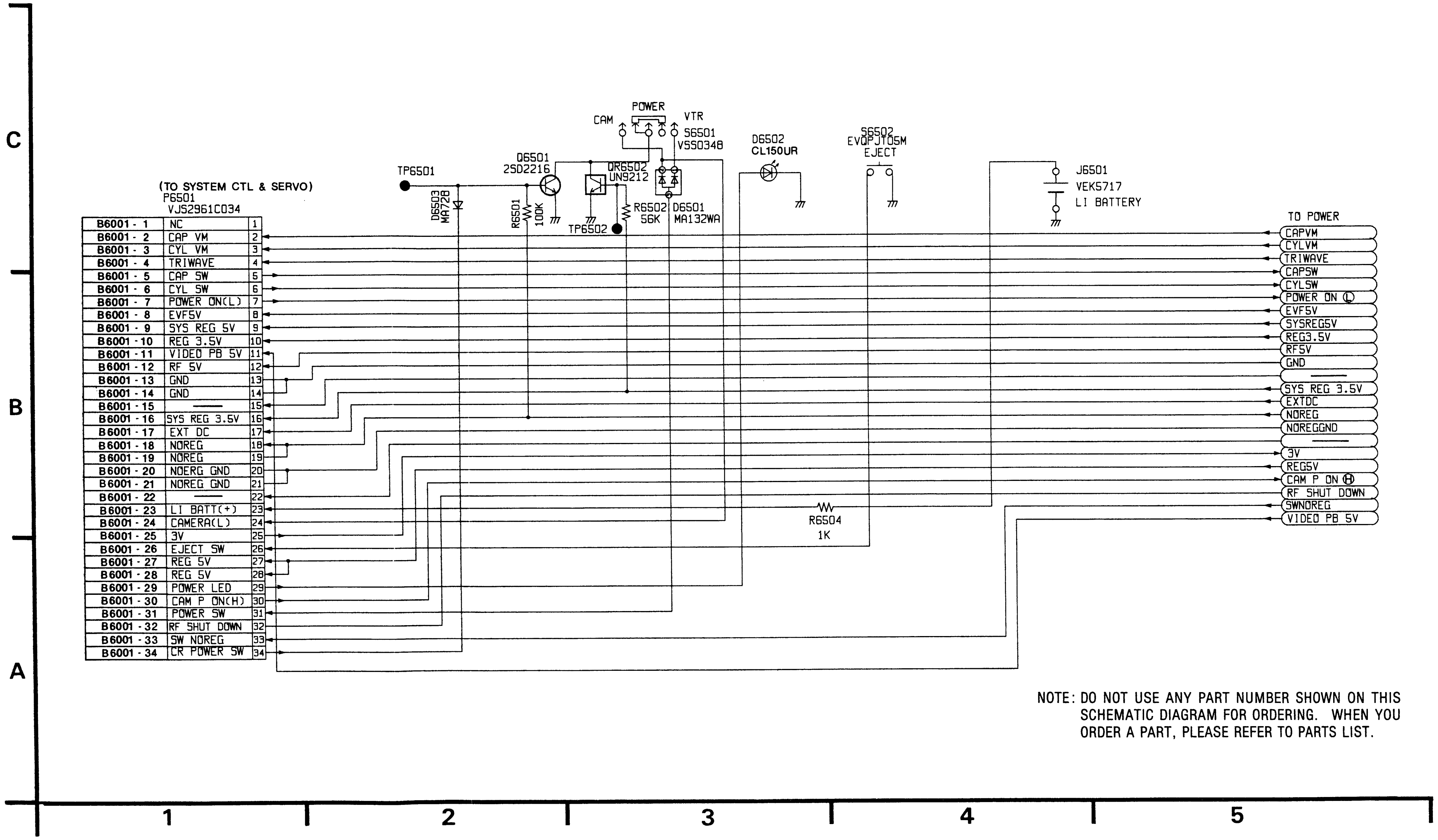

EVF 5V FROM P802-3
IC801
VIDEO IN
P802 2
11
AMP
MIX
13
Q803
AMP
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
16
5
1
3
VR804
BRIGHTNESS
T801
5
4
3
2
1
6
7
8
FOCUS
VR803
G1
CRT
H
HK
G2
G3
P801 2
P801 1
V DEFLECTION COIL
VR801
V SIZE
Q802
AMP
D801
P801 4
P801 3
H DEFLECTION COIL

3-8. SUB OPERATION SCHEMATIC DIAGR


C
B
A
1
2
(TO SYSTEM CTL & SERVO)
P6501
VJS2961C034
B6001 - 1 NC 1
B6001 - 2 CAP VM 2
B6001 - 3 CYL VM 3
B6001 - 4 TRIWAVE 4
B6001 - 5 CAP SW 5
B6001 - 6 CYL SW 6
B6001 - 7 POWER ON(L) 7
B6001 - 8 EVF5V 8
B6001 - 9 SYS REG 5V 9
B6001 - 10 REG 3.5V 10
B6001 - 11 VIDEO PB 5V 11
B6001 - 12 RF 5V 12
B6001 - 13 GND 13
B6001 - 14 GND 14
B6001 - 15 —— 15
B6001 - 16 SYS REG 3.5V 16
B6001 - 17 EXT DC 17
B6001 - 18 NOREG 18
B6001 - 19 NOREG 19
B6001 - 20 NOERG GND 20
B6001 - 21 NOREG GND 21
B6001 - 22 —— 22
B6001 - 23 LI BATT(+) 23
B6001 - 24 CAMERA(L) 24
B6001 - 25 3V 25
B6001 - 26 EJECT SW 26
B6001 - 27 REG 5V 27
B6001 - 28 REG 5V 28
B6001 - 29 POWER LED 29
B6001 - 30 CAM P ON(H) 30
B6001 - 31 POWER SW 31
B6001 - 32 RF SHUT DOWN 32
B6001 - 33 SW NOREG 33
B6001 - 34 CR POWER SW 34
TP6501
D6503 MA728
R6501 100K
Q6501 2SD2216

3-8. SUB OPERATION SCHEMATIC DIAGRAM

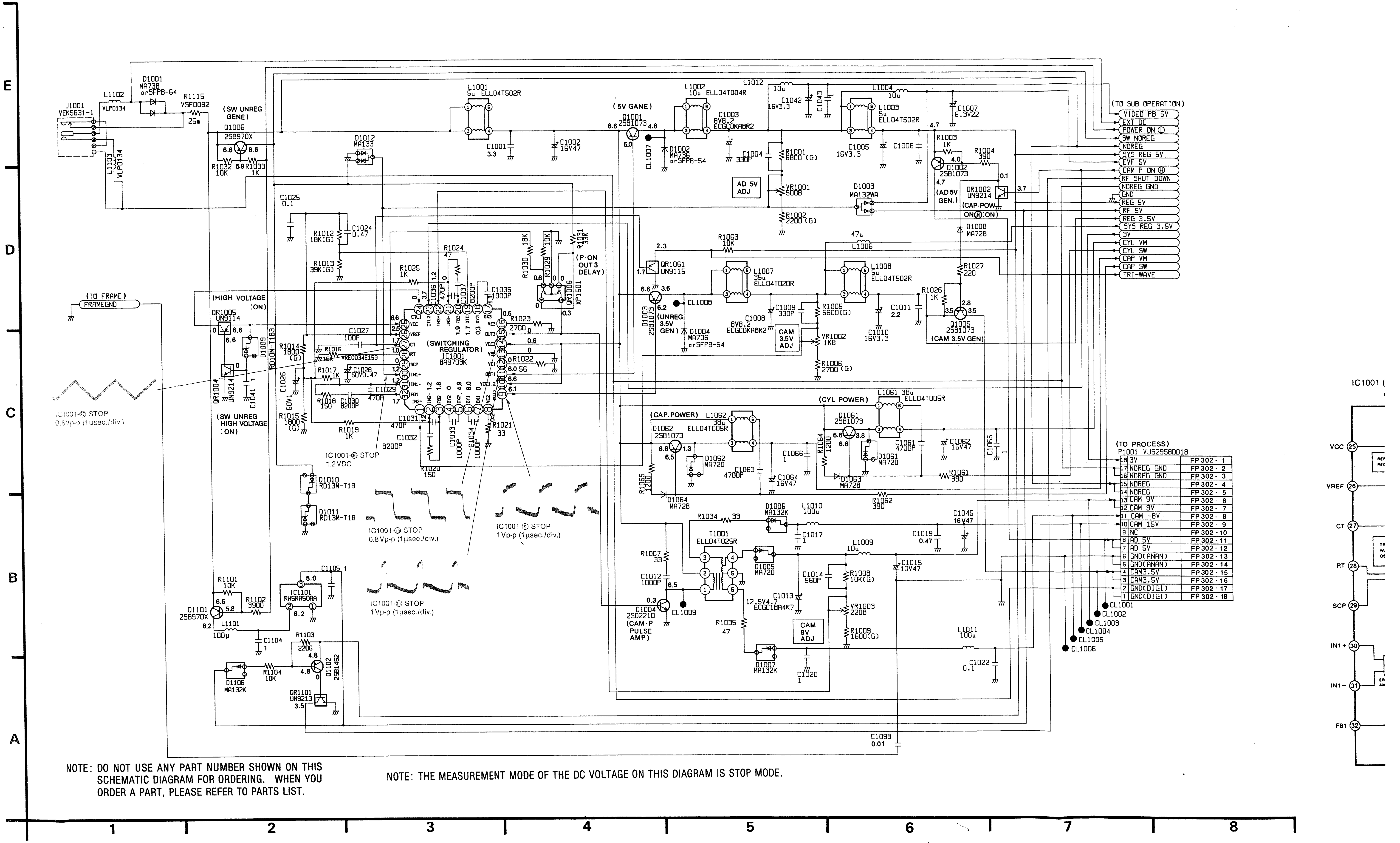

EVF 5V FROM
P802-3
VR804
RIGHTNESS
T801
G1
CRT
H
FOCUS
VR803
HK
G2
G3
ECTION
ECTION


C
B
A
1
2
3
4
5
(TO SYSTEM CTL & SERVO)
P6501
VJS2961C034
B6001 - 1 NC 1
B6001 - 2 CAP VM 2
B6001 - 3 CYL VM 3
B6001 - 4 TRIWAVE 4
B6001 - 5 CAP SW 5
B6001 - 6 CYL SW 6
B6001 - 7 POWER ON(L) 7
B6001 - 8 EVF5V 8
B6001 - 9 SYS REG 5V 9
B6001 - 10 REG 3.5V 10
B6001 - 11 VIDEO PB 5V 11
B6001 - 12 RF 5V 12
B6001 - 13 GND 13
B6001 - 14 GND 14
B6001 - 15 —— 15
B6001 - 16 SYS REG 3.5V 16
B6001 - 17 EXT DC 17
B6001 - 18 NOREG 18
B6001 - 19 NOREG 19
B6001 - 20 NOERG GND 20
B6001 - 21 NOREG GND 21
B6001 - 22 —— 22
B6001 - 23 LI BATT(+) 23
B6001 - 24 CAMERA(L) 24
B6001 - 25 3V 25
B6001 - 26 EJECT SW 26
B6001 - 27 REG 5V 27
B6001 - 28 REG 5V 28
B6001 - 29 POWER LED 29
B6001 - 30 CAM P ON(H) 30
B6001 - 31 POWER SW 31
B6001 - 32 RF SHUT DOWN 32
B6001 - 33 SW NOREG 33
B6001 - 34 CR POWER SW 34
TP6501
D6503
MA728
R6501
100K
Q6501
2SD2216
QR6502
UN9212
TP6502
R6502
56K
D6501
MA132WA
POWER
CAM
VTR
S6501
VSS0348
D6502
CL150UR
S6502
EVQPJT05M
EJECT
J6501
VEK5717
LI BATTERY
R6504
1K
TO POWER
CAPVM
CYLVM
TRIWAVE
CAPSW
CYLSW
POWER ON Ⓛ
EVF5V
SYSREG5V
REG3.5V
RF5V
GND
——
SYS REG 3.5V
EXTDC
NOREG
NOREGGND
——
3V
REG5V
CAM P ON Ⓗ
RF SHUT DOWN
SWNOREG
VIDEO PB 5V

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

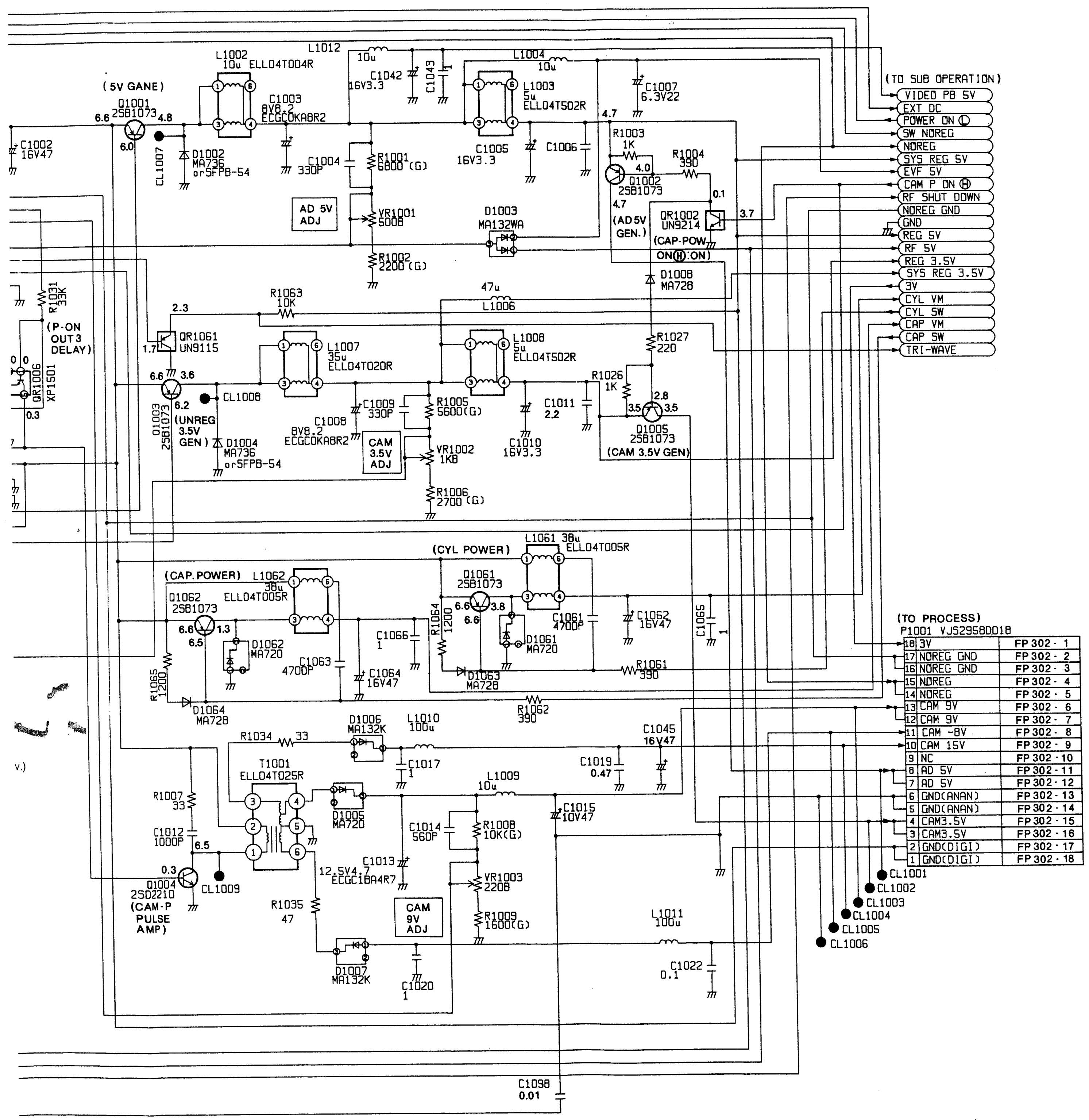
Next Page:
POWER Section

3-9. POWER SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
J1001
VEKS631-1
L1102
VLP0134
D1001
MA738
orSFPB-64
R1115
VSF0092
25m
(SW UNREG
GENE)
Q1006
2SB970X
R1032 10K
R1033 1K
L1103 VLP0134
D1012
MA133
L1001
5u ELL04T502R
C1001 3.3
C1002 16V47
(5V GANE)
Q1001
2SB1073
CL1007
D1002
MA736
orSFPB-54
L1002
10u ELL04T004R
C1003
8V8.2
ECGC0KA8R2
L1012
10u
C1042
16V3.3
C1043
C1004 330P
R1001 6800 (G)
AD 5V ADJ
VR1001 5008
R1002 2200 (G)
L1004
10u
L1003
5u
ELL04T502R
C1005 16V3.3
C1006
C1007 6.3V22
R1003 1K
R1004 390
Q1002 2SB1073
D1003
MA132WA
(AD 5V GEN.)
QR1002
UN9214
(CAP-POW ON(H):ON)
D1008
MA728
(TO SUB OPERATION)
VIDEO PB 5V
EXT DC
POWER ON (L)
SW NOREG
NOREG
SYS REG 5V
EVF 5V
CAM P ON (H)
RF SHUT DOWN
NOREG GND
GND
REG 5V
RF 5V
REG 3.5V
SYS REG 3.5V
3V
CYL VM
CYL SW
CAP VM
CAP SW
TRI-WAVE
C1025 0.1
R1012 18K(G)
C1024 0.47
R1013 39K(G)
R1024 47
R1025 1K
C1035 1000P
R1030 18K
R1029 10K
R1031 33K
QR1006
XP1501
(P-ON OUT3 DELAY)
(TO FRAME)
FRAMEGND
(HIGH VOLTAGE :ON)
QR1005
UN9114
D1009
RD10M-T1B3
C1027 100P
R1014 1800 (G)
R1016 15K
VRE0034E153
C1028 50V0.47
R1017 1K
C1029 470P
R1018 150
C1030 8200P
(SWITCHING REGULATOR)
IC1001
BA9703K
R1023 2700
R1022 56
QR1004
UN9214
C1041 1
C1026 50V1
R1015 1800 (G)
R1019 1K
C1031 470P
C1032 8200P
C1033 1000P
C1034 1000P
R1020 150
R1021 33
(SW UNREG HIGH VOLTAGE :ON)
IC1001-② STOP
0.6Vp-p (1μsec./div.)
IC1001-⑩ STOP
1.2VDC
IC1001-⑭ STOP
0.8Vp-p (1μsec./div.)
IC1001-⑤ STOP
1Vp-p (1μsec./div.)
IC1001-⑪ STOP
1Vp-p (1μsec./div.)
D1010
RD13M-T1B
D1011
RD13M-T1B
QR1061
UN9115
R1063 10K
L1006 47u
L1007
35u
ELL04T020R
L1008
5u
ELL04T502R
R1027 220
R1026 1K
Q1003
2SB1073
CL1008
(UNREG 3.5V GEN)
D1004
MA736
orSFPB-54
C1008
8V8.2
ECGC0KA8R2
C1009 330P
R1005 5600 (G)
CAM 3.5V ADJ
VR1002 1KB
R1006 2700 (G)
C1010 16V3.3
C1011 2.2
Q1005
2SB1073
(CAM 3.5V GEN)
(CYL POWER)
L1061 38u
ELL04T005R
Q1061
2SB1073
C1061 4700P
C1062 16V47
D1061 MA720
D1063 MA728
R1061 390
R1062 390
R1064 1200
C1065 1
(CAP. POWER)
L1062
38u
ELL04T005R
Q1062
2SB1073
D1062
MA720
C1063 4700P
C1064 16V47
C1066 1
R1065 1200
D1064
MA728
R1034 33
D1006 MA132K
L1010 100u
C1017 1
T1001
ELL04T025R
D1005 MA720
R1007 33
C1012 1000P
Q1004
2SD2210
(CAM-P PULSE AMP)
CL1009
C1013
12.5V4.7
ECGC1BA4R7
R1035 47
L1009 10u
C1014 560P
R1008 10K(G)
VR1003 2208
R1009 1600(G)
CAM 9V ADJ
D1007 MA132K
C1020 1
C1045 16V47
C1019 0.47
C1015 10V47
L1011 100u
C1022 0.1
C1098 0.01
(TO PROCESS)
P1001 VJS2958D018
18 3V FP302-1
17 NOREG GND FP302-2
16 NOREG GND FP302-3
15 NOREG FP302-4
14 NOREG FP302-5
13 CAM 9V FP302-6
12 CAM 9V FP302-7
11 CAM -8V FP302-8
10 CAM 15V FP302-9
9 NC FP302-10
8 AD 5V FP302-11
7 AD 5V FP302-12
6 GND(ANAN) FP302-13
5 GND(ANAN) FP302-14
4 CAM3.5V FP302-15
3 CAM3.5V FP302-16
2 GND(DIGI) FP302-17
1 GND(DIGI) FP302-18
CL1001
CL1002
CL1003
CL1004
CL1005
CL1006
R1101 10K
Q1101
2SB970X
R1102 3900
L1101 100μ
C1105 1
IC1101
RH5RA50AA
C1104 1
R1103 2200
Q1102 2SB1462
D1106 MA132K
R1104 10K
QR1101
UN9213
IC1001
VCC
VREF
CT
RT
SCP
IN1+
IN1-
FB1

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

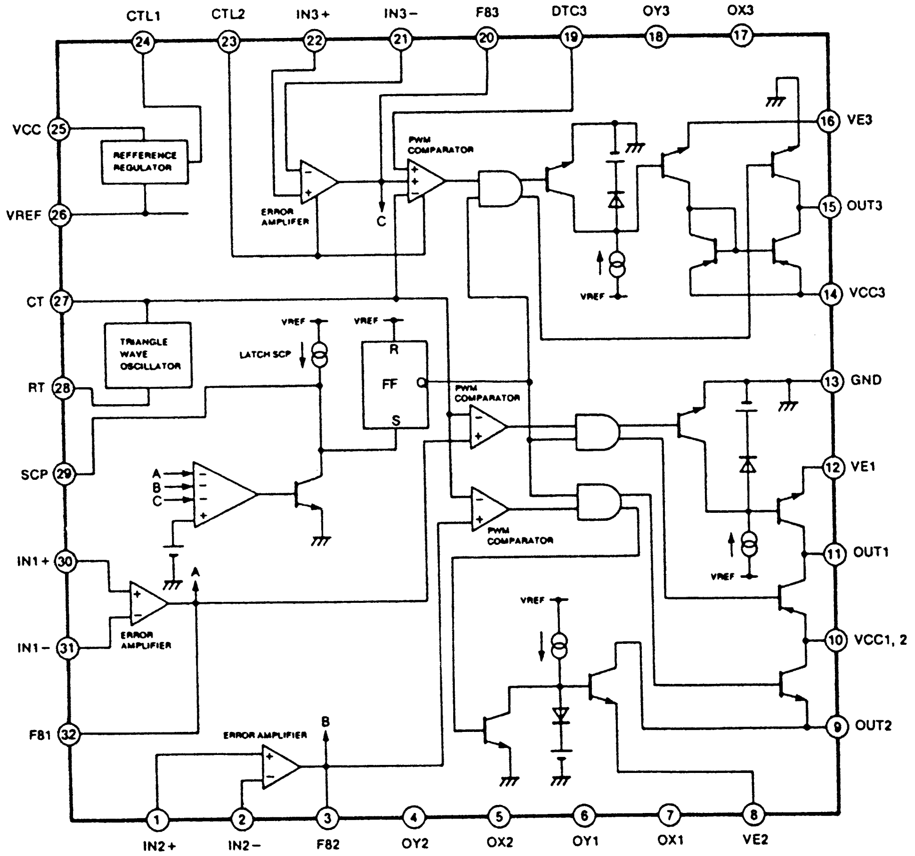
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.


(5V GANE)
Q1001
2SB1073
6.6
4.8
6.0
C1002
16V47
CL1007
D1002
MA736
or SFPB-54
L1002
10u ELL04T004R
C1003
8V8.2
ECGC0KA8R2
L1012
10u
C1042
16V3.3
C1043
1
C1004
330P
R1001
6800 (G)
AD 5V
ADJ
VR1001
500B
R1002
2200 (G)
L1004
10u
L1003
5u
ELL04T502R
C1005
16V3.3
C1006
1
C1007
6.3V22
4.7
R1003
1K
4.0
R1004
390
Q1002
2SB1073
0.1
4.7
(AD 5V GEN.)
QR1002
UN9214
3.7
(CAP-POW ON(H):ON)
D1003
MA132WA
D1008
MA728
R1027
220
47u
L1006
R1031
33K
(P-ON OUT3 DELAY)
QR1006
XP1501
0.3
2.3
R1063
10K
1.7
QR1061
UN9115
L1007
35u
ELL04T020R
L1008
5u
ELL04T502R
6.6
3.6
Q1003
2SB1073
6.2
CL1008
(UNREG 3.5V GEN)
D1004
MA736
or SFPB-54
C1008
8V8.2
ECGC0KA8R2
C1009
330P
R1005
5600 (G)
CAM 3.5V ADJ
VR1002
1KB
R1006
2700 (G)
C1011
2.2
C1010
16V3.3
R1026
1K
2.8
3.5
3.5
Q1005
2SB1073
(CAM 3.5V GEN)
(CYL POWER)
L1061 38u
ELL04T005R
Q1061
2SB1073
6.6
3.8
6.6
C1061
4700P
D1061
MA720
C1062
16V47
C1065
1
R1064
1200
C1066
1
(CAP.POWER)
L1062
38u
ELL04T005R
Q1062
2SB1073
6.6
1.3
6.5
D1062
MA720
C1063
4700P
C1064
16V47
R1065
1200
D1064
MA728
D1063
MA728
R1061
390
R1062
390
R1034
33
D1006
MA132K
L1010
100u
C1045
16V47
C1017
1
C1019
0.47
L1009
10u
T1001
ELL04T025R
D1005
MA720
C1015
10V47
R1007
33
C1012
1000P
6.5
0.3
Q1004
2SD2210
(CAM-P PULSE AMP)
CL1009
R1035
47
12.5V
4.7
C1013
ECGC1BA4R7
C1014
560P
R1008
10K (G)
VR1003
220B
CAM 9V ADJ
R1009
1600 (G)
D1007
MA132K
C1020
1
L1011
100u
C1022
0.1
C1098
0.01
(TO SUB OPERATION)
VIDEO PB 5V
EXT DC
POWER ON (L)
SW NOREG
NOREG
SYS REG 5V
EVF 5V
CAM P ON (H)
RF SHUT DOWN
NOREG GND
GND
REG 5V
RF 5V
REG 3.5V
SYS REG 3.5V
3V
CYL VM
CYL SW
CAP VM
CAP SW
TRI-WAVE
(TO PROCESS)
P1001 VJS2958D018
18 3V FP 302 - 1
17 NOREG GND FP 302 - 2
16 NOREG GND FP 302 - 3
15 NOREG FP 302 - 4
14 NOREG FP 302 - 5
13 CAM 9V FP 302 - 6
12 CAM 9V FP 302 - 7
11 CAM -8V FP 302 - 8
10 CAM 15V FP 302 - 9
9 NC FP 302 - 10
8 AD 5V FP 302 - 11
7 AD 5V FP 302 - 12
6 GND(ANAN) FP 302 - 13
5 GND(ANAN) FP 302 - 14
4 CAM3.5V FP 302 - 15
3 CAM3.5V FP 302 - 16
2 GND(DIGI) FP 302 - 17
1 GND(DIGI) FP 302 - 18
CL1001
CL1002
CL1003
CL1004
CL1005
CL1006

THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

4 5 6 7 8

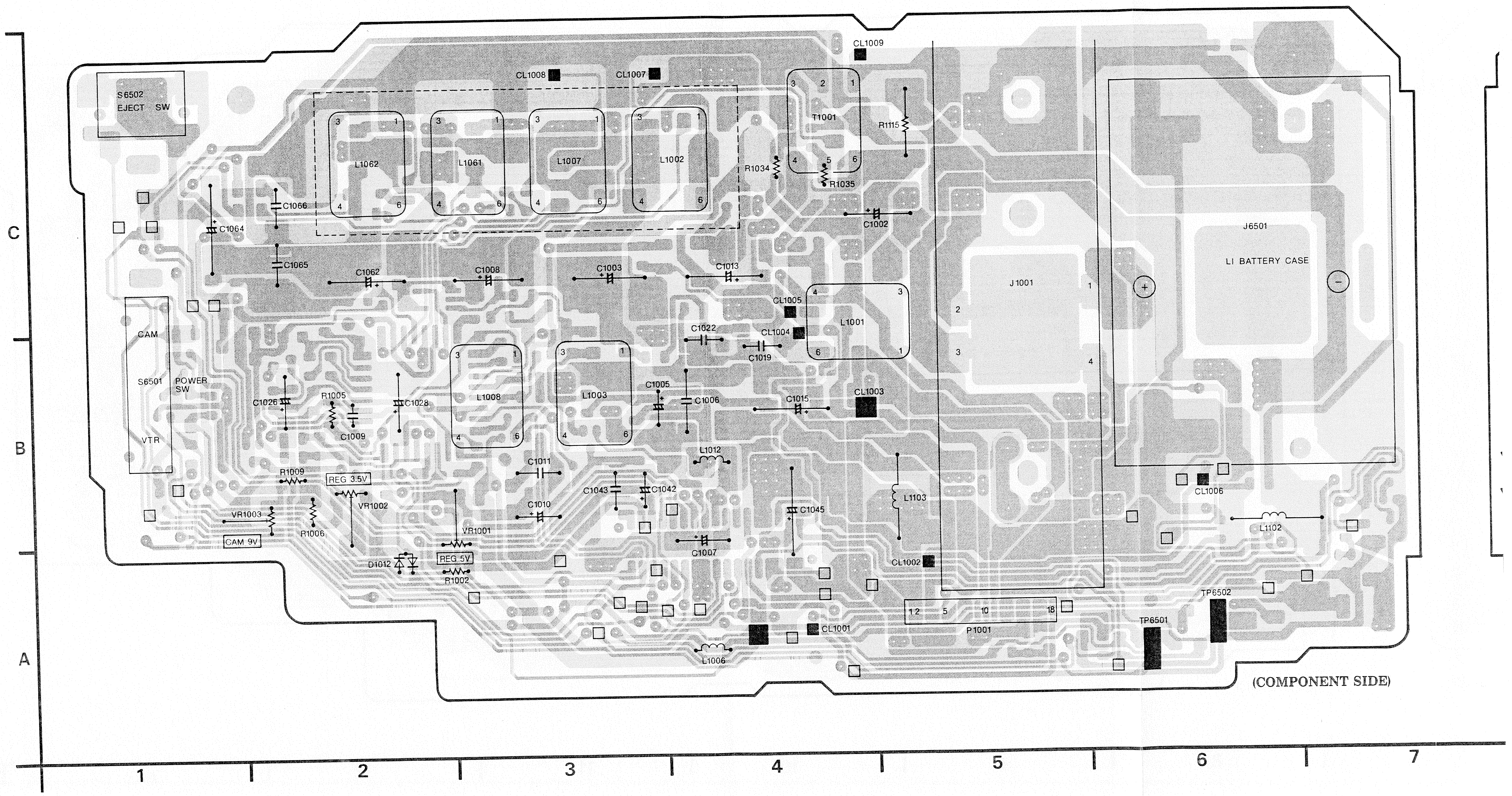
IC1001 (BA9703K)


CTL1
CTL2
IN3+
IN3-
F83
DTC3
OY3
OX3
24
23
22
21
20
19
18
17
VCC
25
VREF
26
CT
27
RT
28
SCP
29
IN1+
30
IN1-
31
F81
32
REFFERENCE REGULATOR
ERROR AMPLIFIER
PWM COMPARATOR
C
TRIANGLE WAVE OSCILLATOR
LATCH SCP
VREF
R
FF
S
Q
A
B
C
ERROR AMPLIFIER
PWM COMPARATOR
PWM COMPARATOR
ERROR AMPLIFIER
B
16 VE3
15 OUT3
14 VCC3
13 GND
12 VE1
11 OUT1
10 VCC1, 2
9 OUT2
1 IN2+
2 IN2-
3 F82
4 OY2
5 OX2
6 OY1
7 OX1
8 VE2

POWER & SUB OPERATION C.B.A.	
Transistor	
Q1001	C-11 Ⓕ
Q1002	B-10 Ⓕ
Q1003	C-11 Ⓕ
Q1004	C-10 Ⓕ
Q1005	B-10 Ⓕ
Q1006	A-8 Ⓕ
Q1061	C-12 Ⓕ
Q1062	C-12 Ⓕ
Q1101	A-9 Ⓕ
Q1102	B-8 Ⓕ
Q6501	B-13 Ⓕ
Transistor & Resistor	
QR1002	B-11 Ⓕ
QR1004	B-11 Ⓕ
QR1005	B-12 Ⓕ
QR1006	C-12 Ⓕ
QR1061	B-12 Ⓕ
QR1101	B-8 Ⓕ
QR6502	B-13 Ⓕ
Integrated Circuit	
IC1001	B-12 Ⓕ
IC1101	A-8 Ⓕ
Test Point	
CL1001	A-4 Ⓒ
CL1002	A-5 Ⓒ
CL1003	B-4 Ⓒ
CL1004	B-4 Ⓒ
CL1005	C-4 Ⓒ
CL1006	B-6 Ⓒ
CL1007	C-3 Ⓒ
CL1008	C-3 Ⓒ
CL1009	C-3 Ⓒ
TP6501	A-6 Ⓒ
TP6502	A-6 Ⓒ
Adjustment	
VR1001	B-3 Ⓒ
VR1002	B-2 Ⓒ
VR1003	B-2 Ⓒ
Connector	
P1001	A-5 Ⓒ
P6501	B-11 Ⓒ

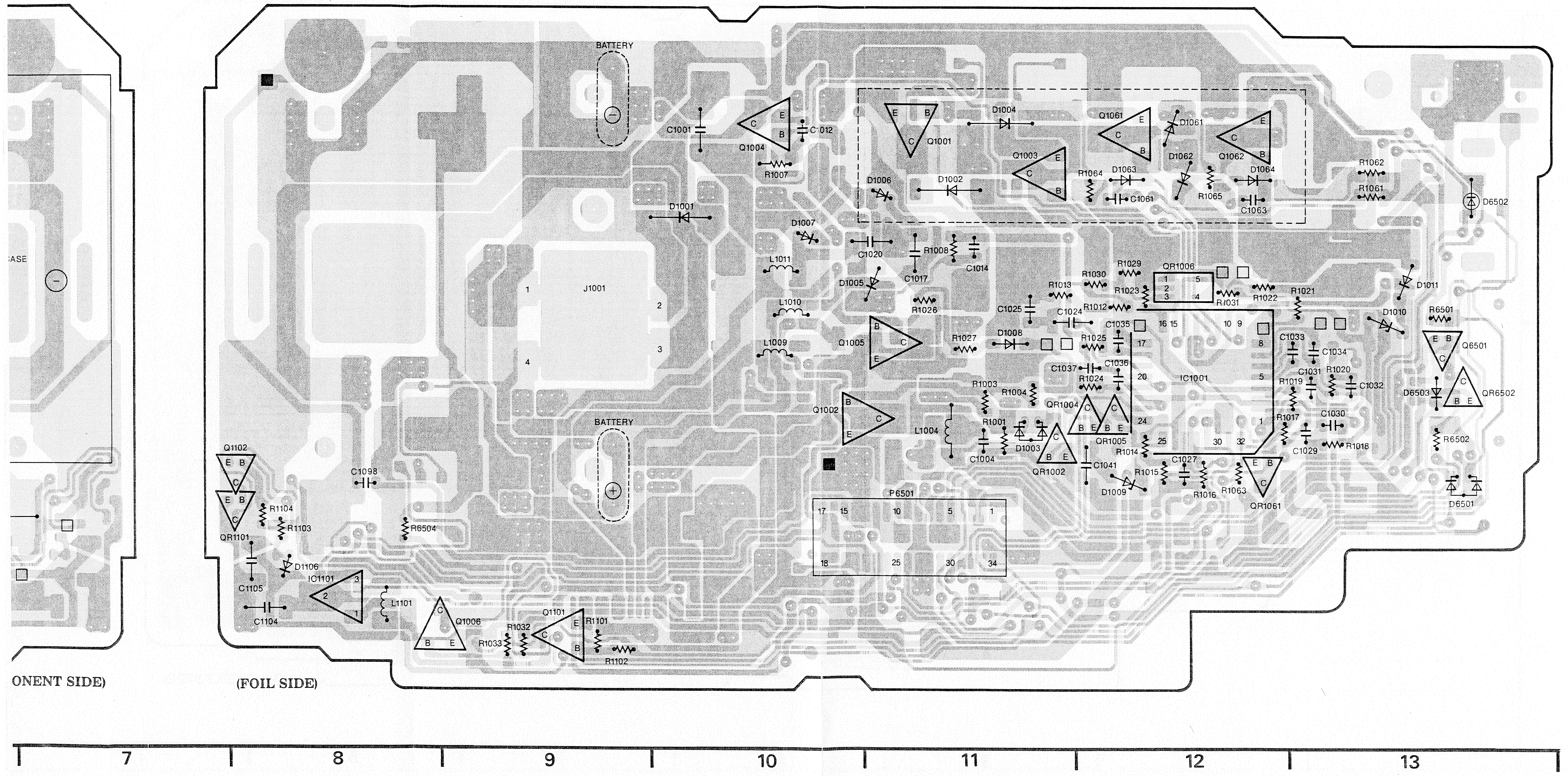
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-10. POWER & SUB OPERATION C.B.A. (VEP01508A)



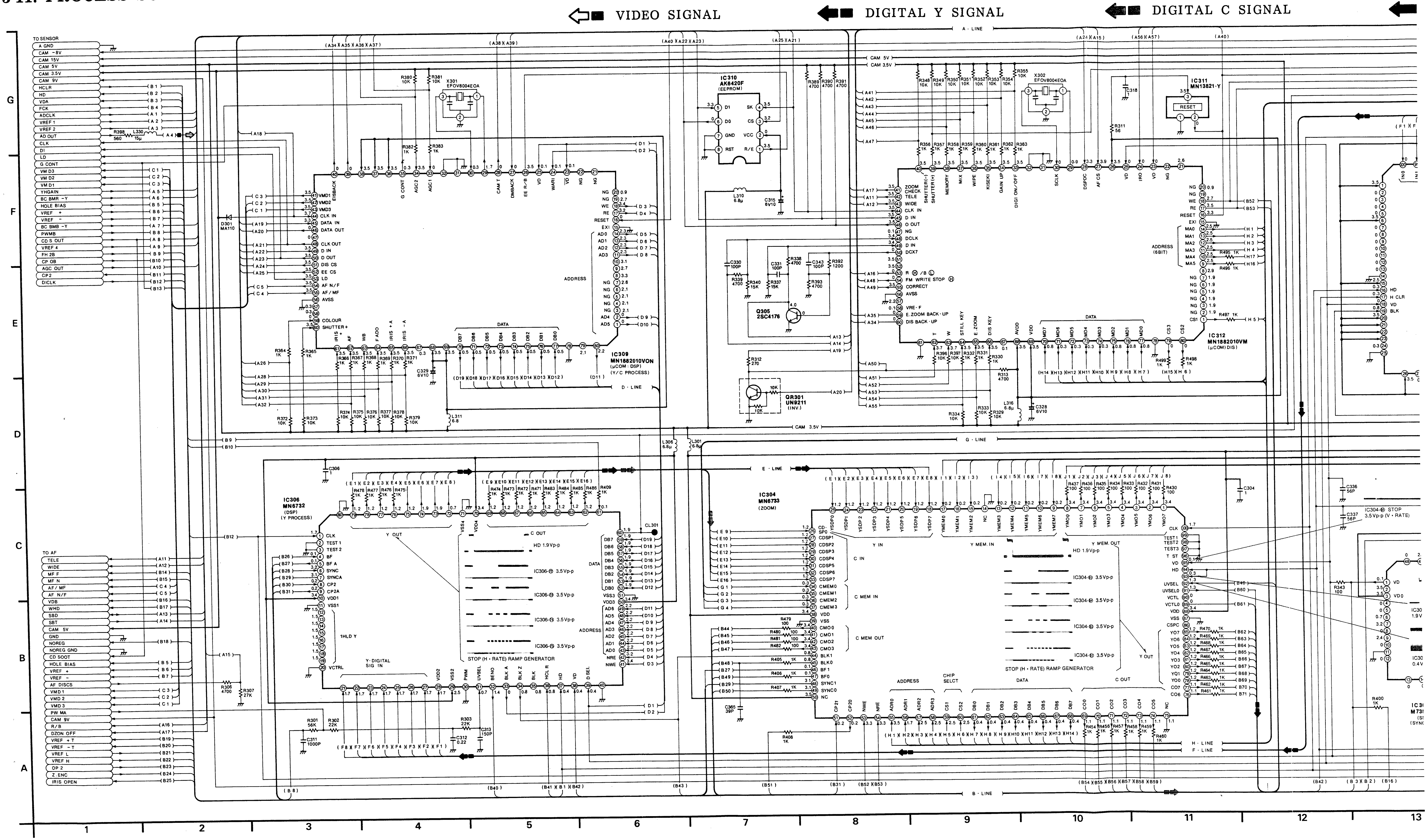
S6502
EJECT SW
CL1008
CL1007
CL1009
L1062
L1061
L1007
L1002
T1001
R1115
R1034
R1035
C1066
C1064
C1065
C1062
C1008
C1003
C1013
C1002
J6501
LI BATTERY CASE
+
−
J1001
CL1005
L1001
CL1004
C1022
C1019
CAM
S6501
POWER SW
VTR
C1026
R1005
C1009
C1028
L1008
L1003
C1005
C1006
C1015
CL1003
L1012
C1011
R1009
REG 3.5V
VR1002
C1043
C1042
C1045
L1103
CL1006
L1102
VR1003
R1006
CAM 9V
C1010
VR1001
C1007
CL1002
D1012
REG 5V
R1002
P1001
TP6502
TP6501
CL1001
L1006
A
B
C
1
2
3
4
5
6
7

(COMPONENT SIDE)



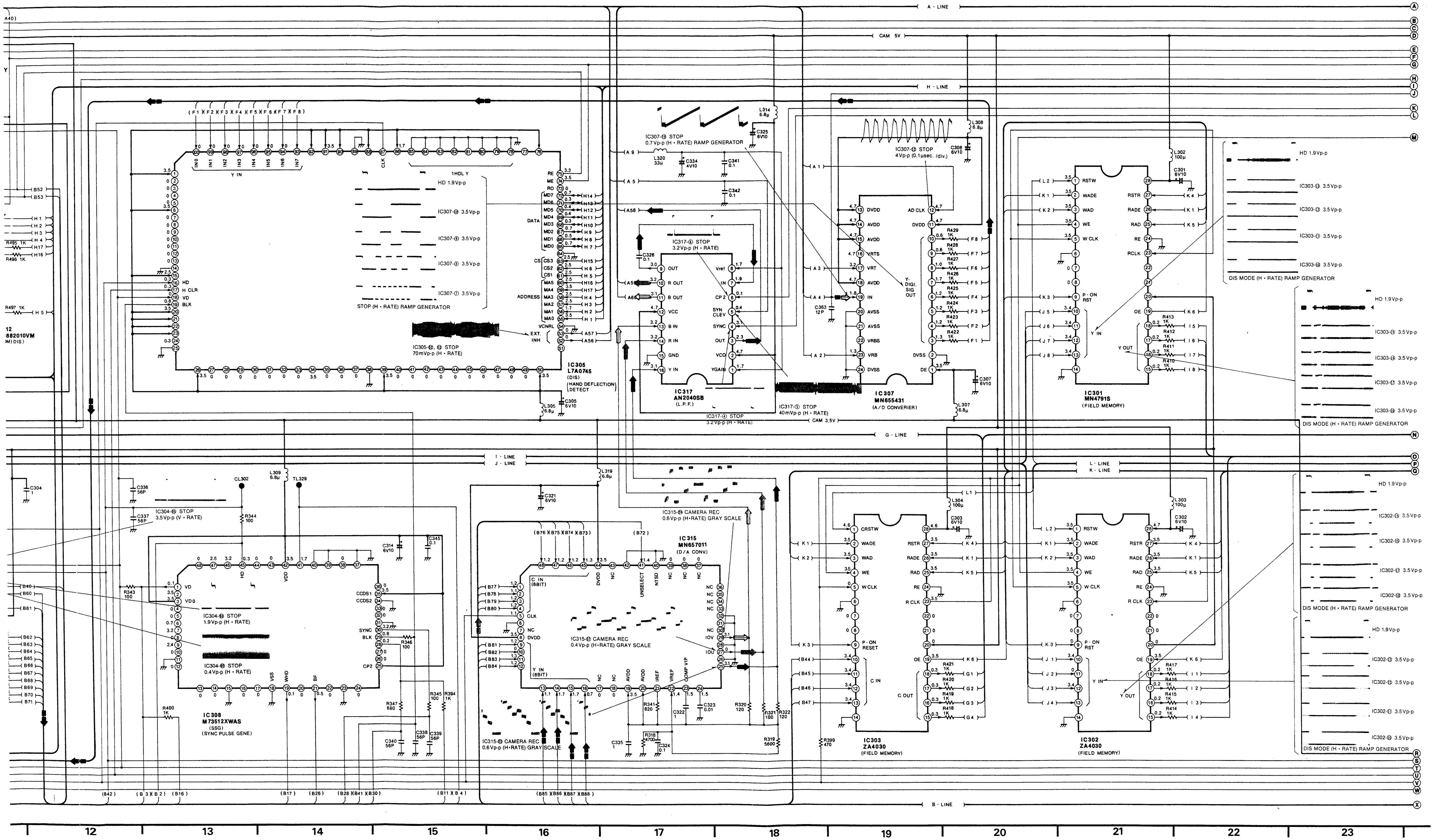
ASE
ONENT SIDE)
(FOIL SIDE)
BATTERY
BATTERY
C1001
C1012
Q1004
R1007
D1001
J1001
1
2
3
4
Q1001
D1004
Q1061
D1061
Q1062
Q1003
D1062
R1064
D1063
D1064
D1006
D1002
C1061
R1065
C1063
R1062
R1061
D6502
D1007
C1020
R1008
C1014
C1017
L1011
D1005
R1026
L1010
R1029
R1030
R1013
R1023
QR1006
R1031
R1022
R1021
D1011
C1025
C1024
R1012
C1035
D1010
R6501
Q1005
L1009
R1027
D1008
R1025
C1033
C1034
Q6501
C1037
C1036
R1024
IC1001
C1031
R1020
R1019
C1032
D6503
QR6502
Q1002
R1003
R1004
QR1004
L1004
R1001
D1003
QR1005
R1014
R1017
C1030
C1029
R1018
R6502
C1004
QR1002
C1041
R1015
C1027
R1016
R1063
QR1061
D1009
D6501
Q1102
QR1101
R1104
R1103
C1098
R6504
P6501
17
15
10
5
1
18
25
30
34
D1106
IC1101
C1105
C1104
L1101
Q1006
Q1101
R1101
R1032
R1033
R1102
7
8
9
10
11
12
13

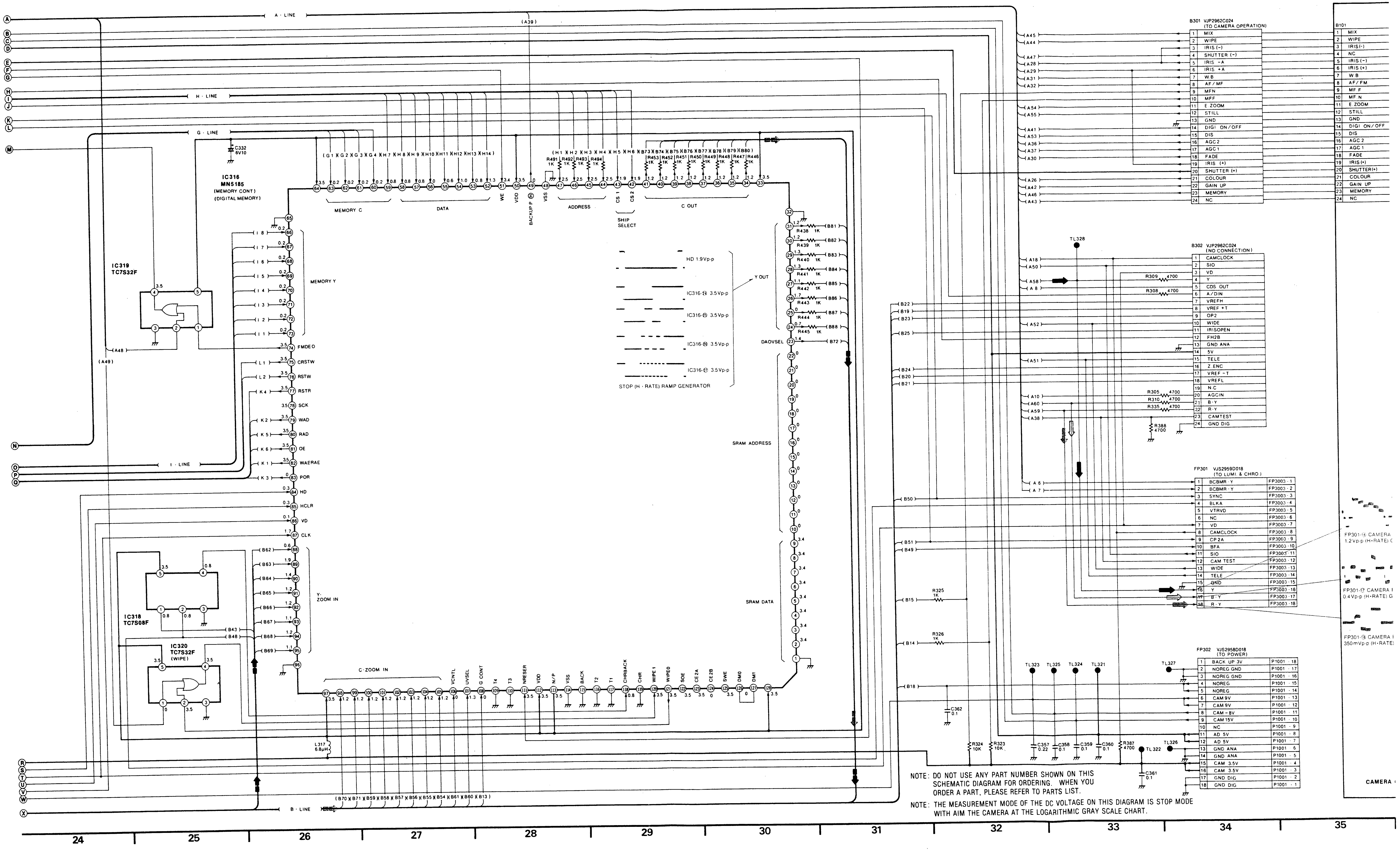
3-11. PROCESS SCHEMATIC DIAGRAM


VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
TO SENSOR
IC310
AK6420F
(EEPROM)
IC311
MN13821-Y
IC309
MN1882010VON
(μCOM · DSP)
(Y/C PROCESS)
IC312
MN1882010VM
(μCOM) DIS)
Q305
2SC4176
QR301
UN9211
(INV.)
IC306
MN6732
(DSP)
(Y PROCESS)
IC304
MN6733
(ZOOM)
A - LINE
B - LINE
D - LINE
E - LINE
F - LINE
G - LINE
H - LINE
CAM 5V
CAM 3.5V
HD 1.9Vp-p
IC306-㊿ 3.5Vp-p
IC304-㊿ 3.5Vp-p
STOP (H · RATE) RAMP GENERATOR
IC304-㊵ STOP 3.5Vp-p (V · RATE)
TO AF
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

Back Page:
POWER & SUB OPERATION Section

C SIGNAL Y SIGNAL R-Y SIGNAL B-Y SIGNAL


IC305
L7A0745
(DIS)
(HAND DEFLECTION DETECT
STOP (H • RATE) RAMP GENERATOR
IC305-51, 55 STOP
70mVp-p (H • RATE)
IC307-4 3.5Vp-p
IC307-5 3.5Vp-p
IC307-6 3.5Vp-p
IC307-7 3.5Vp-p
HD 1.9Vp-p
IC307-9 STOP
0.7Vp-p (H • RATE) RAMP GENERATOR
IC317-6 STOP
3.2Vp-p (H • RATE)
IC317
AN2040SB
(L.P.F.)
IC317-1 STOP
40mVp-p (H • RATE)
IC317-4 STOP
3.2Vp-p (H • RATE)
IC307-19 STOP
4Vp-p (0.1μsec. /div.)
IC307
MN655431
(A/D CONVERTER)
IC301
MN4791S
(FIELD MEMORY)
IC303-13 3.5Vp-p
DIS MODE (H • RATE) RAMP GENERATOR
IC308
M73512XWAS
(SSG)
(SYNC PULSE GENE)
IC304-9 STOP
3.5Vp-p (V • RATE)
IC304-5 STOP
1.9Vp-p (H • RATE)
IC304-6 STOP
0.4Vp-p (H • RATE)
IC315
MN657011
(D/A CONV.)
IC315-19 CAMERA REC
0.6Vp-p (H•RATE) GRAY SCALE
IC315-25 CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE
IC303
ZA4030
(FIELD MEMORY)
IC302
ZA4030
(FIELD MEMORY)
IC302-15 3.5Vp-p
HD 1.9Vp-p
A • LINE
CAM 5V
H • LINE
G • LINE
I • LINE
J • LINE
L • LINE
K • LINE
B • LINE
CAM 3.5V
12
13
14
15
16
17
18
19
20
21
22
23


A · LINE
H · LINE
G · LINE
I · LINE
B · LINE
(A39)
C332 6V10
IC316
MN5185
(MEMORY CONT)
(DIGITAL MEMORY)
MEMORY C
DATA
WE
VDD
BACKUP P (H)
VSS
ADDRESS
CS 1
CS 2
SHIP SELECT
C OUT
MEMORY Y
FMDEO
CRSTW
RSTW
RSTR
SCK
WAD
RAD
OE
WAERAE
POR
HD
HCLR
VD
CLK
Y-ZOOM IN
C-ZOOM IN
VCNTL
UVSEL
G CONT
T4
T3
NRESER
VDD
N/P
VSS
BACK
T2
T1
CHRBACK
CHR
WIPE 1
WIPE0
SOE
CE2A
CE2B
SWE
DM0
DM1
DAOVSEL
SRAM ADDRESS
SRAM DATA
HD 1.9Vp-p
IC316-㉔ 3.5Vp-p
IC316-㉕ 3.5Vp-p
IC316-㉖ 3.5Vp-p
IC316-㉗ 3.5Vp-p
Y OUT
STOP (H · RATE) RAMP GENERATOR
IC319
TC7S32F
IC318
TC7S08F
IC320
TC7S32F
(WIPE)
L317 6.8μH
R438 1K
R439 1K
R440 1K
R441 1K
R442 1K
R443 1K
R444 1K
R445 1K
R491 1K
R492 1K
R493 1K
R494 1K
R453 1K
R452 1K
R451 1K
R450 1K
R449 1K
R448 1K
R447 1K
R446 1K
(G1)(G2)(G3)(G4)(H7)(H8)(H9)(H10)(H11)(H12)(H13)(H14)
(H1)(H2)(H3)(H4)(H5)(H6)(B73)(B74)(B75)(B76)(B77)(B78)(B79)(B80)
(B70)(B71)(B59)(B58)(B57)(B56)(B55)(B54)(B61)(B60)(B13)
B301 VJP2962C024
(TO CAMERA OPERATION)
1 MIX
2 WIPE
3 IRIS (−)
4 SHUTTER (−)
5 IRIS −A
6 IRIS +A
7 W.B
8 AF/MF
9 MFN
10 MFF
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC2
17 AGC1
18 FADE
19 IRIS (+)
20 SHUTTER (+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B101
1 MIX
2 WIPE
3 IRIS(−)
4 NC
5 IRIS (−)
6 IRIS (+)
7 W.B
8 AF/FM
9 MF.F
10 MF.N
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC 2
17 AGC 1
18 FADE
19 IRIS (+)
20 SHUTTER(+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
CAMERA
TL328
B302 VJP2962C024
(NO CONNECTION)
1 CAMCLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A/DIN
7 VREFH
8 VREF +T
9 OP2
10 WIDE
11 IRISOPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF −T
18 VREFL
19 N.C
20 AGCIN
21 B·Y
22 R·Y
23 CAMTEST
24 GND DIG
R309 4700
R308 4700
R305 4700
R310 4700
R335 4700
R388 4700
FP301 VJS2959D018
(TO LUMI. & CHRO.)
1 BCBMR·Y FP3003·1
2 BCBMR·Y FP3003·2
3 SYNC FP3003·3
4 BLKA FP3003·4
5 VTRVD FP3003·5
6 NC FP3003·6
7 VD FP3003·7
8 CAMCLOCK FP3003·8
9 CP2A FP3003·9
10 BFA FP3003·10
11 SIO FP3003·11
12 CAM TEST FP3003·12
13 WIDE FP3003·13
14 TELE FP3003·14
15 GND FP3003·15
16 Y FP3003·16
17 B·Y FP3003·17
18 R·Y FP3003·18
FP301-⑯ CAMERA
1.2Vp-p (H·RATE)
FP301-⑰ CAMERA
0.4Vp-p (H·RATE)
FP301-⑱ CAMERA
350mVp-p (H·RATE)
R325 1K
R326 1K
C362 0.1
FP302 VJS2958D018
(TO POWER)
1 BACK UP 3V P1001·18
2 NOREG GND P1001·17
3 NOREG GND P1001·16
4 NOREG P1001·15
5 NOREG P1001·14
6 CAM 9V P1001·13
7 CAM 9V P1001·12
8 CAM −8V P1001·11
9 CAM 15V P1001·10
10 NC P1001·9
11 AD 5V P1001·8
12 AD 5V P1001·7
13 GND ANA P1001·6
14 GND ANA P1001·5
15 CAM 3.5V P1001·4
16 CAM 3.5V P1001·3
17 GND DIG P1001·2
18 GND DIG P1001·1
TL323
TL325
TL324
TL321
TL327
TL326
TL322
R324 10K
R323 10K
C357 0.22
C358 0.1
C359 0.1
C360 0.1
R387 4700
C361 0.1
24
25
26
27
28
29
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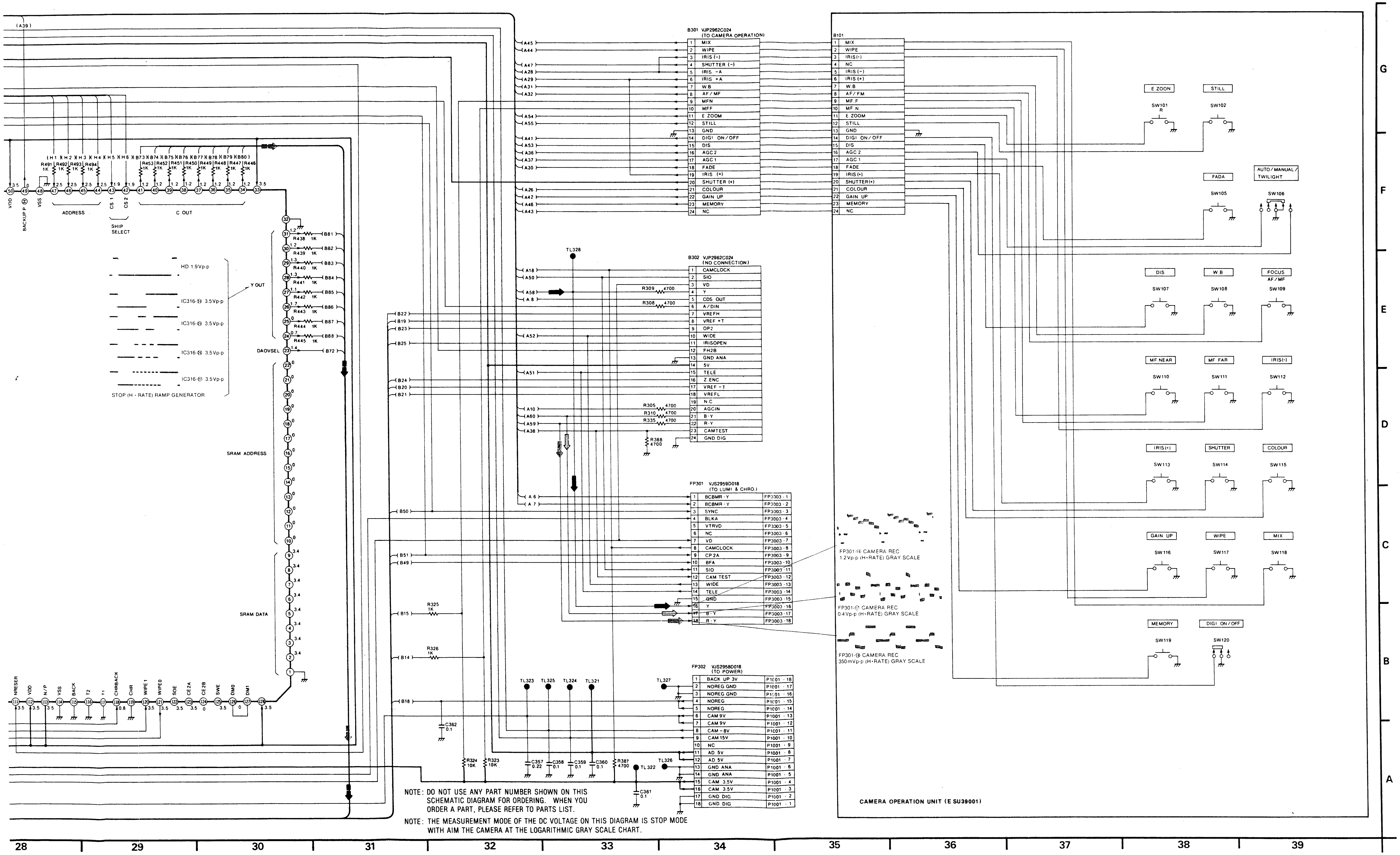
35

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

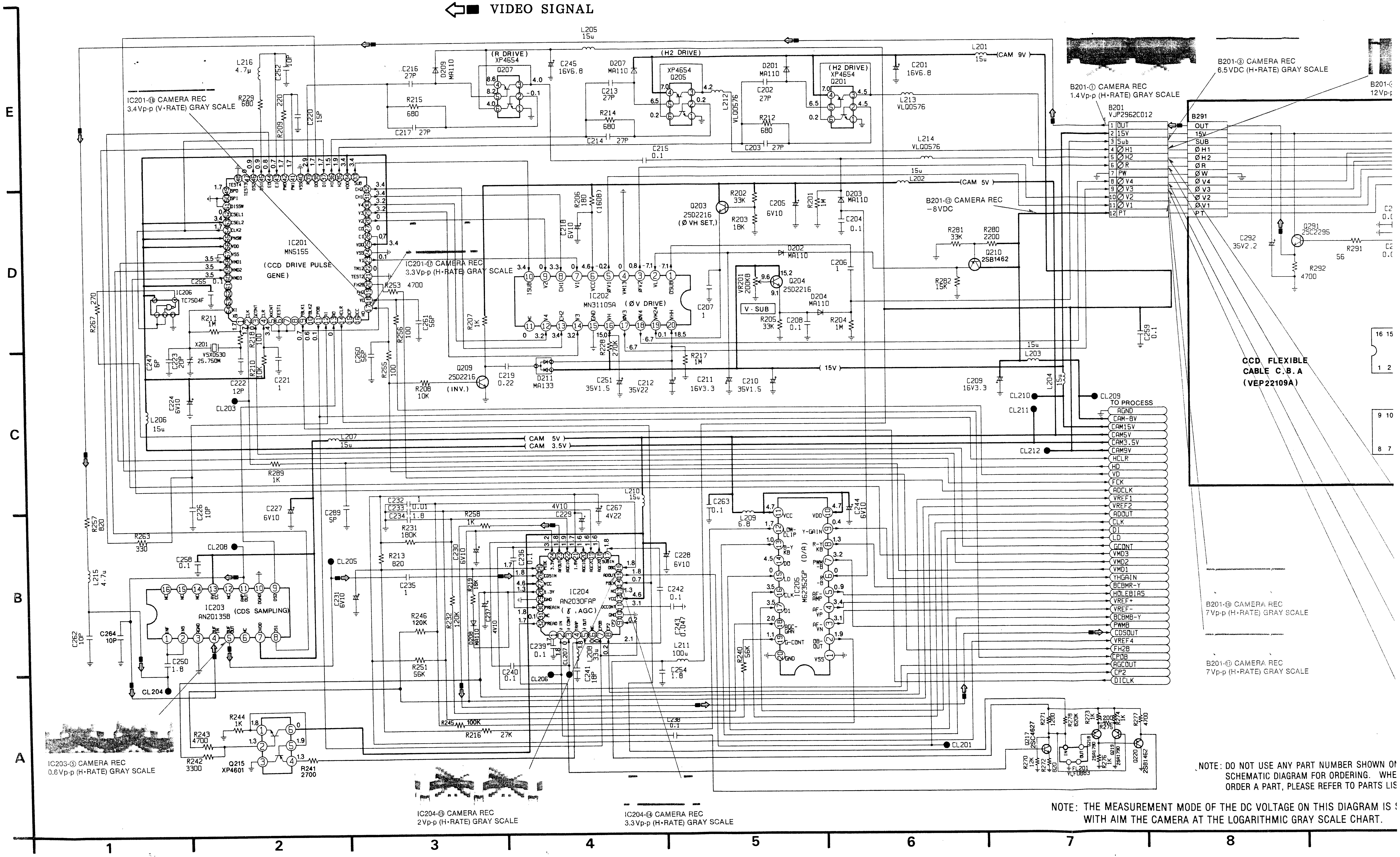

B301 VJP2962C024 (TO CAMERA OPERATION)
1 MIX
2 WIPE
3 IRIS (−)
4 SHUTTER (−)
5 IRIS −A
6 IRIS +A
7 W.B
8 AF/MF
9 MFN
10 MFF
11 E ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC2
17 AGC1
18 FADE
19 IRIS (+)
20 SHUTTER (+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B302 VJP2962C024 (NO CONNECTION)
1 CAMCLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A/DIN
7 VREFH
8 VREF +T
9 OP2
10 WIDE
11 IRISOPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF −T
18 VREFL
19 N.C
20 AGCIN
21 B-Y
22 R-Y
23 CAMTEST
24 GND DIG
FP301 VJS2959D018 (TO LUMI & CHRO.)
1 BCBMR-Y FP3003-1
2 BCBMR-Y FP3003-2
3 SYNC FP3003-3
4 BLKA FP3003-4
5 VTRVD FP3003-5
6 NC FP3003-6
7 VD FP3003-7
8 CAMCLOCK FP3003-8
9 CP2A FP3003-9
10 BFA FP3003-10
11 SIO FP3003-11
12 CAM TEST FP3003-12
13 WIDE FP3003-13
14 TELE FP3003-14
15 GND FP3003-15
16 Y FP3003-16
17 B-Y FP3003-17
18 R-Y FP3003-18
FP302 VJS2958D018 (TO POWER)
1 BACK UP 3V P1001-18
2 NOREG GND P1001-17
3 NOREG GND P1001-16
4 NOREG P1001-15
5 NOREG P1001-14
6 CAM 9V P1001-13
7 CAM 9V P1001-12
8 CAM −8V P1001-11
9 CAM 15V P1001-10
10 NC P1001-9
11 AD 5V P1001-8
12 AD 5V P1001-7
13 GND ANA P1001-6
14 GND ANA P1001-5
15 CAM 3.5V P1001-4
16 CAM 3.5V P1001-3
17 GND DIG P1001-2
18 GND DIG P1001-1
B101
1 MIX
2 WIPE
3 IRIS(−)
4 NC
5 IRIS (−)
6 IRIS (+)
7 W.B
8 AF/FM
9 MF.F
10 MF.N
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC 2
17 AGC 1
18 FADE
19 IRIS (+)
20 SHUTTER(+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
E ZOON SW101
STILL SW102
FADA SW105
AUTO/MANUAL/TWILIGHT SW106
DIS SW107
W.B SW108
FOCUS AF/MF SW109
MF.NEAR SW110
MF.FAR SW111
IRIS(−) SW112
IRIS(+) SW113
SHUTTER SW114
COLOUR SW115
GAIN UP SW116
WIPE SW117
MIX SW118
MEMORY SW119
DIGI ON/OFF SW120
CAMERA OPERATION UNIT (E SU39001)
FP301-⑯ CAMERA REC 1.2Vp-p (H-RATE) GRAY SCALE
FP301-⑰ CAMERA REC 0.4Vp-p (H-RATE) GRAY SCALE
FP301-⑱ CAMERA REC 350mVp-p (H-RATE) GRAY SCALE
HD 1.9Vp-p
IC316-⑳ 3.5Vp-p
Y OUT
STOP (H-RATE) RAMP GENERATOR
ADDRESS
C OUT
CHIP SELECT
DAOVSEL
SRAM ADDRESS
SRAM DATA
VDD
BACKUP P
VSS
CS 1
CS 2
NRESER
VDD
N/P
VSS
BACK
T2
T1
CHRBACK
CHR
WIPE1
WIPE0
SOE
CE2A
CE2B
SWE
DM0
DM1
TL328
TL323
TL325
TL324
TL321
TL327
TL326
TL322
R309 4700
R308 4700
R305 4700
R310 4700
R335 4700
R388 4700
R325 1K
R326 1K
C362 0.1
R324 10K
R323 10K
C357 0.22
C358 0.1
C359 0.1
C360 0.1
R387 4700
C361 0.1
28
29
30
31
32
33
34
35
36
37
38
39
G
F
E
D
C
B
A

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

Next Page:
SENSOR Section

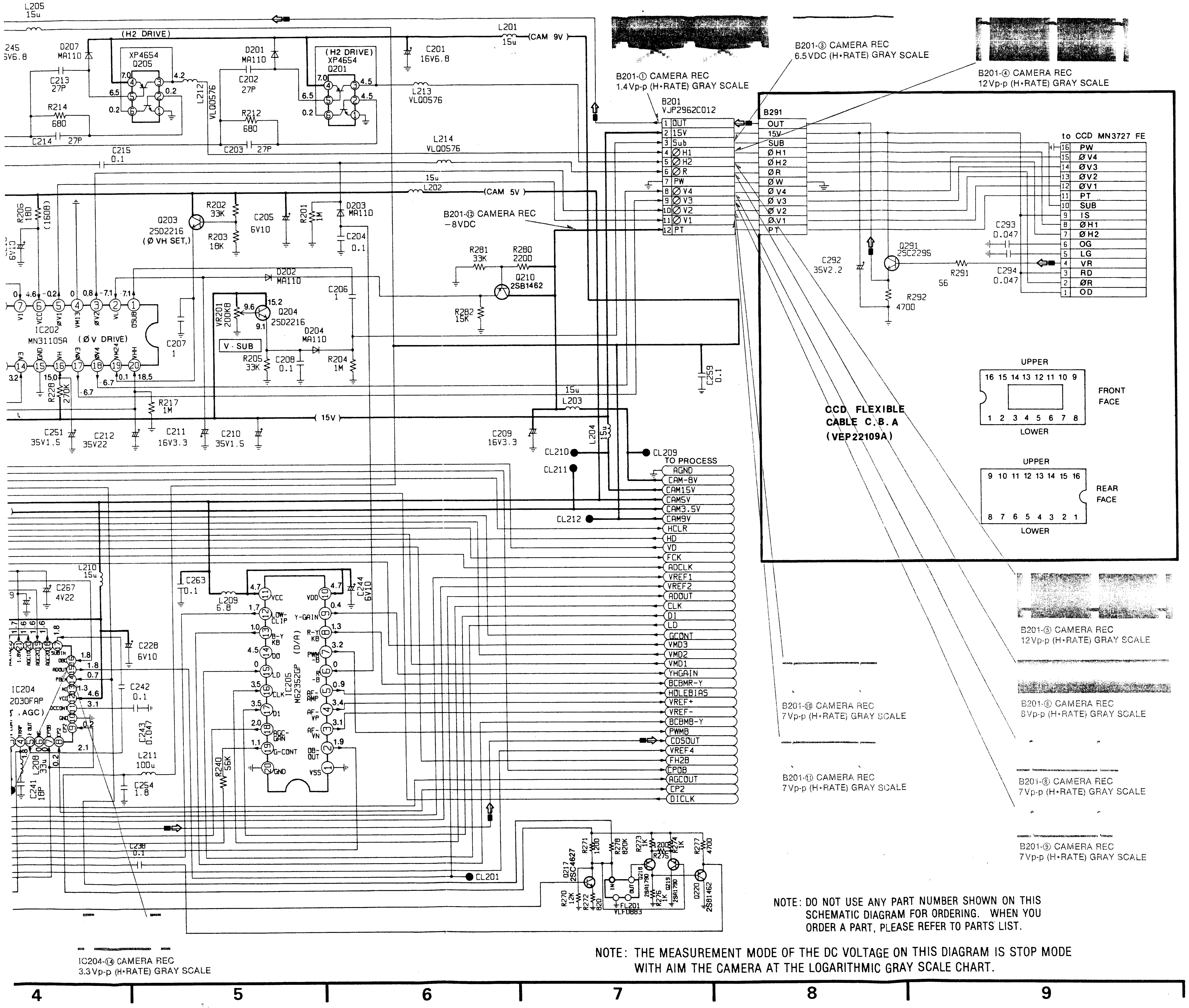
3-12. SENSOR SCHEMATIC DIAGRAM


VIDEO SIGNAL
IC201 MN5155 (CCD DRIVE PULSE GENE)
IC202 MN31105A (ØV DRIVE)
IC203 AN20135B (CDS SAMPLING)
IC204 AN2030FAP (γ, AGC)
IC205 M62352GP (D/A)
IC206 TC7S04F
Q207 XP4654 (R DRIVE)
Q205 XP4654 (H2 DRIVE)
Q201 XP4654 (H2 DRIVE)
Q203 2SD2216 (ØVH SET)
Q204 2SD2216
Q209 2SD2216 (INV.)
Q210 2SB1462
Q215 XP4601
Q291 2SC2295
Q217 2SC4627
Q220 2SB1462
FL201 VLF0083
X201 VSX0530 25.750M
VR201 200KB V·SUB
B201 VJP2962C012
B291
CCD FLEXIBLE CABLE C.B.A (VEP22109A)
IC201-⑱ CAMERA REC 3.4Vp-p (V·RATE) GRAY SCALE
IC201-⑰ CAMERA REC 3.3Vp-p (H·RATE) GRAY SCALE
IC203-⑤ CAMERA REC 0.6Vp-p (H·RATE) GRAY SCALE
IC204-⑬ CAMERA REC 2Vp-p (H·RATE) GRAY SCALE
IC204-⑭ CAMERA REC 3.3Vp-p (H·RATE) GRAY SCALE
B201-③ CAMERA REC 6.5VDC (H·RATE) GRAY SCALE
B201-① CAMERA REC 1.4Vp-p (H·RATE) GRAY SCALE
B201-⑫ CAMERA REC -8VDC
B201-⑩ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
B201-⑪ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
CAM 9V
CAM 5V
CAM 3.5V
15V
TO PROCESS
AGND
CAM-8V
CAM15V
CAM5V
CAM3.5V
CAM9V
HCLR
HD
VD
FCK
ADCLK
VREF1
VREF2
ADOUT
CLK
DI
LD
GCONT
VMD3
VMD2
VMD1
YHGAIN
BCBMR-Y
HOLEBIAS
VREF+
VREF-
BCBMB-Y
PWMB
CDSOUT
VREF4
FH2B
CPOB
AGCOUT
CP2
DICLK
OUT
15V
SUB
ØH1
ØH2
ØR
ØW
ØV4
ØV3
ØV2
ØV1
PT
CL201
CL203
CL204
CL205
CL206
CL208
CL209
CL210
CL211
CL212
E
D
C
B
A
1
2
3
4
5
6
7
8

NOTE: DO NOT USE ANY PART NUMBER SHOWN O SCHEMATIC DIAGRAM FOR ORDERING. WHE ORDER A PART, PLEASE REFER TO PARTS LIS

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

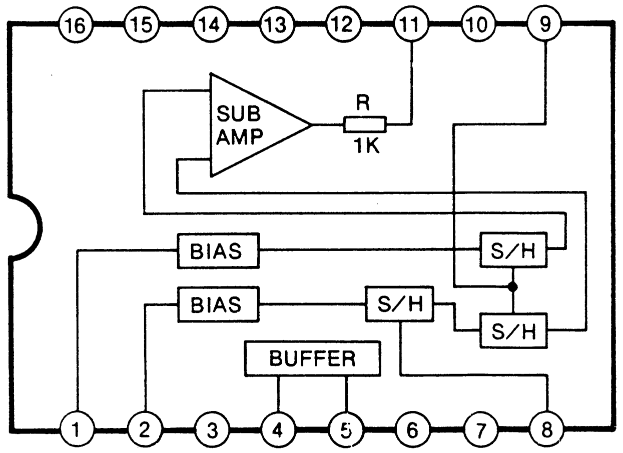
NAL


L205 15u
(H2 DRIVE)
D207 MA110
XP4654 Q205
C213 27P
R214 680
C214 27P
D201 MA110
C202 27P
R212 680
C203 27P
XP4654 Q201
L212 VLQ0576
L201 15u
(CAM 9V)
C201 16V6.8
L213 VLQ0576
L214 VLQ0576
C215 0.1
L202 15u
(CAM 5V)
Q203 2SD2216 (Ø VH SET.)
R202 33K
R203 18K
C205 6V10
R201 1M
D203 MA110
C204 0.1
D202 MA110
C206 1
IC202 MN31105A (Ø V DRIVE)
VR201 200KB
Q204 2SD2216
D204 MA110
V·SUB
R205 33K
C208 0.1
R204 1M
C207 1
R217 1M
C251 35V1.5
C212 35V22
C211 16V3.3
C210 35V1.5
(15V)
L203 15u
C209 16V3.3
L204 15u
C259 0.1
B201-① CAMERA REC 1.4Vp-p (H·RATE) GRAY SCALE
B201 VJP2962C012
B201-③ CAMERA REC 6.5VDC (H·RATE) GRAY SCALE
B201-④ CAMERA REC 12Vp-p (H·RATE) GRAY SCALE
B201-⑫ CAMERA REC -8VDC
R281 33K
R280 2200
Q210 2SB1462
R282 15K
B291
to CCD MN3727 FE
OUT 15V SUB ØH1 ØH2 ØR ØW ØV4 ØV3 ØV2 ØV1 PT
PW ØV4 ØV3 ØV2 ØV1 PT SUB IS ØH1 ØH2 OG LG VR RD ØR OD
C293 0.047
C292 35V2.2
Q291 2SC2295
R291 56
C294 0.047
R292 4700
UPPER
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
LOWER
FRONT FACE
9 10 11 12 13 14 15 16
8 7 6 5 4 3 2 1
REAR FACE
CCD FLEXIBLE CABLE C.B.A (VEP22109A)
CL210
CL211
CL212
CL209
TO PROCESS
AGND CAM-8V CAM15V CAM5V CAM3.5V CAM9V HCLR HD VD FCK ADCLK VREF1 VREF2 ADOUT CLK DI LD GCONT VMD3 VMD2 VMD1 YHGAIN BCBMR-Y HOLEBIAS VREF+ VREF- BCBMB-Y PWMB CDSOUT VREF4 FH2B CPOB AGCOUT CP2 DICLK
L210 15u
C267 4V22
C263 0.1
L209 6.8
C244 6V10
IC205 M62352GP (D/A)
C228 6V10
C242 0.1
C243 0.047
IC204 AN2030FAP (AGC)
L211 100u
C254 1.8
L208 33u
C241 18P
R240 56K
C238 0.1
CL201
Q217 2SC4627
R271 1200
R278 820K
R273 1K
R274 1K
R277 4700
Q218 2SB1790
Q219 2SB1790
Q220 2SB1462
R270 12K
R272 820
FL201 VLF0883
R275
R276 1K
B201-⑤ CAMERA REC 12Vp-p (H·RATE) GRAY SCALE
B201-⑩ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
B201-⑥ CAMERA REC 8Vp-p (H·RATE) GRAY SCALE
B201-⑪ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
B201-⑧ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
B201-⑨ CAMERA REC 7Vp-p (H·RATE) GRAY SCALE
IC204-⑭ CAMERA REC 3.3Vp-p (H·RATE) GRAY SCALE
4 5 6 7 8 9

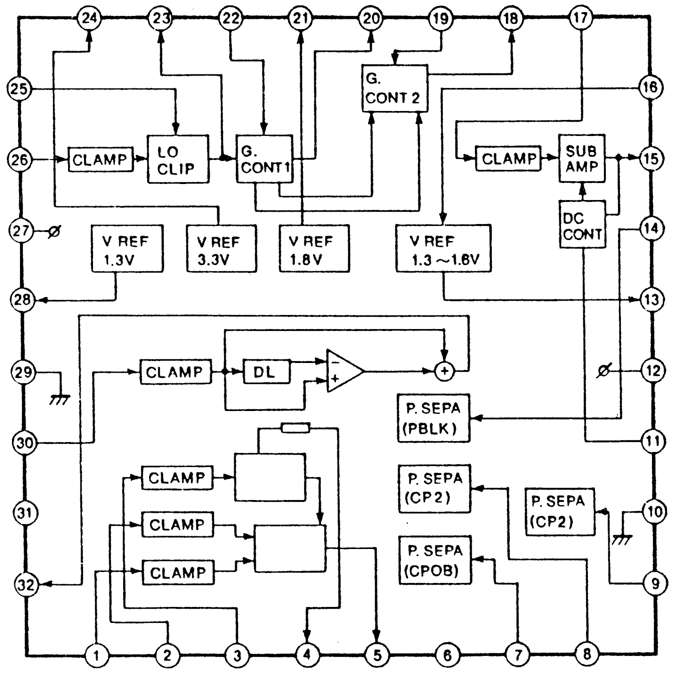
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

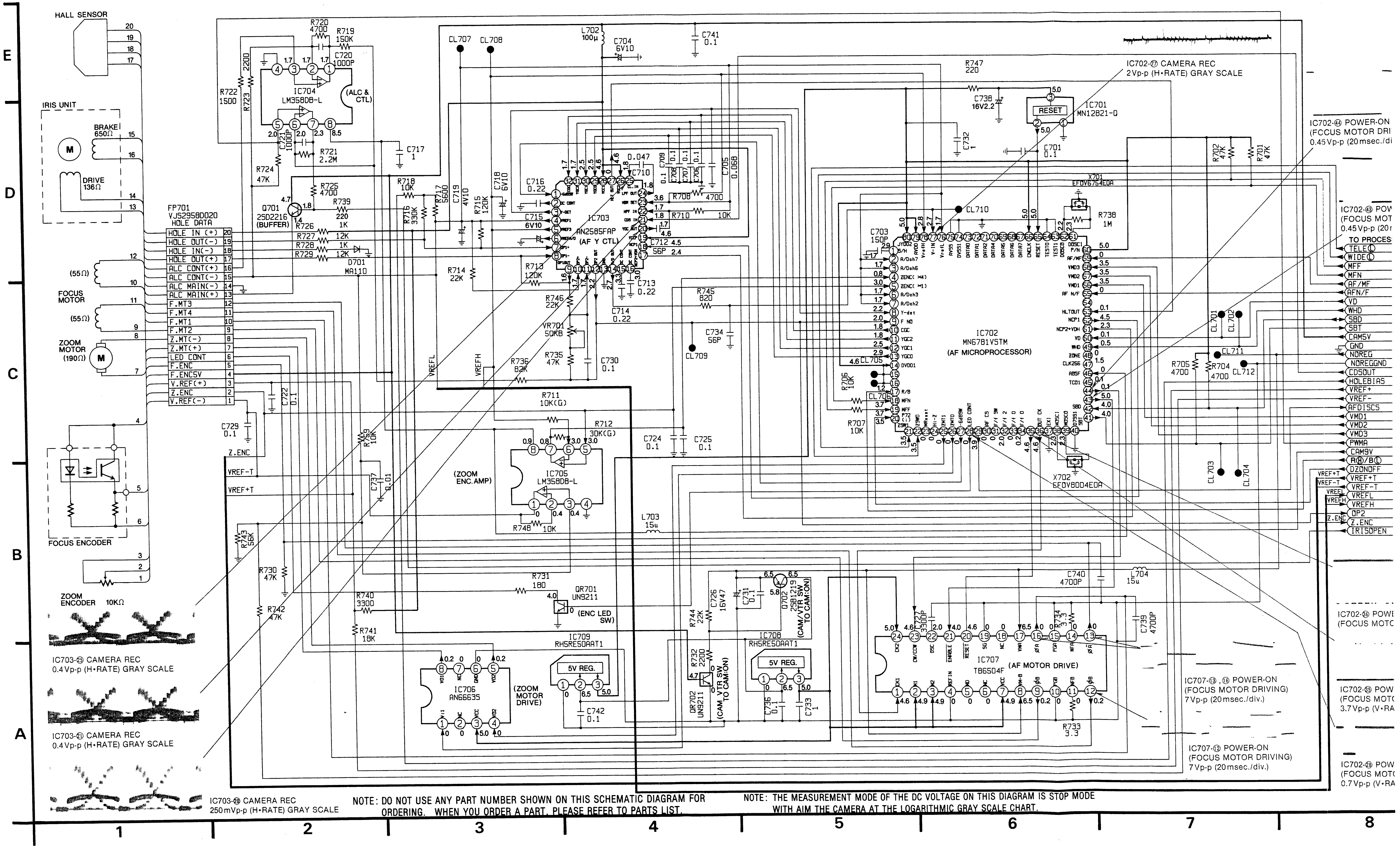
IC203 AN2013SB


16 15 14 13 12 11 10 9
SUB AMP
R 1K
BIAS
S/H
BIAS
S/H
S/H
BUFFER
1 2 3 4 5 6 7 8

IC204 AN2030FAP


24 23 22 21 20 19 18 17
25 26 27 28 29 30 31 32
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
CLAMP
LO CLIP
G. CONT1
G. CONT 2
CLAMP
SUB AMP
DC CONT
V REF 1.3V
V REF 3.3V
V REF 1.8V
V REF 1.3～1.8V
CLAMP
DL
P. SEPA (PBLK)
P. SEPA (CP2)
P. SEPA (CP2)
P. SEPA (CPOB)
CLAMP
CLAMP
CLAMP

3-13. AUTO FOCUS SCHEMATIC DIAGRAM


HALL SENSOR
IRIS UNIT
BRAKE 650Ω
DRIVE 136Ω
(55Ω)
FOCUS MOTOR
ZOOM MOTOR (190Ω)
FOCUS ENCODER
ZOOM ENCODER 10KΩ
FP701 VJS2958D020 HOLE DATA
HOLE IN (+)
HOLE OUT(-)
HOLE IN(-)
HOLE OUT(+)
ALC CONT(+)
ALC CONT(-)
ALC MAIN(-)
ALC MAIN(+)
F.MT3
F.MT4
F.MT1
F.MT2
Z.MT(-)
Z.MT(+)
LED CONT
F.ENC
F.ENC5V
V.REF(+)
Z.ENC
V.REF(-)
IC704 LM358DB-L
(ALC & CTL)
Q701 2SD2216 (BUFFER)
D701 MA110
IC703 AN2585FAP (AF Y CTL)
VR701 50KB
IC705 LM358DB-L
(ZOOM ENC.AMP)
QR701 UN9211
(ENC LED SW)
IC709 RH5RE50AAT1
5V REG.
IC706 AN6663S
(ZOOM MOTOR DRIVE)
QR702 UN9211
(CAM VTR SW TO CAM:ON)
Q702 2SB1219 (CAM/VTR SW TO CAM:ON)
IC708 RH5RE50AAT1
IC701 MN12821-0
RESET
IC702 MN6781VSTM
(AF MICROPROCESSOR)
X701 EFOV6754E0A
X702 EFOV8004E0A
IC707 TB6504F
(AF MOTOR DRIVE)
CL701
CL702
CL703
CL704
CL705
CL706
CL707
CL708
CL709
CL710
CL711
CL712
L702 100μ
L703 15u
L704 15u
TO PROCESS
TELE(L)
WIDE(L)
MFF
MFN
AF/MF
AFN/F
VD
WHD
SBD
SBT
CAM5V
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
VREF+
VREF-
AFDISCS
VMD1
VMD2
VMD3
PWMA
CAM9V
R(H)/B(L)
DZONOFF
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
E
D
C
B
A
1
2
3
4
5
6
7
8

IC702-⑰ CAMERA REC
2Vp-p (H•RATE) GRAY SCALE

IC702-㊹ POWER-ON
(FCCUS MOTOR DRI
0.45Vp-p (20msec./di

IC702-㊸ POW
(FOCUS MOT
0.45Vp-p (20

IC702-㊱ POWI
(FOCUS MOTC

IC702-㉟ POW
(FOCUS MOTC
3.7Vp-p (V•RA

IC702-㉘ POW
(FOCUS MOTC
0.7Vp-p (V•RA

IC707-⑬, ⑱ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

IC707-⑫ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

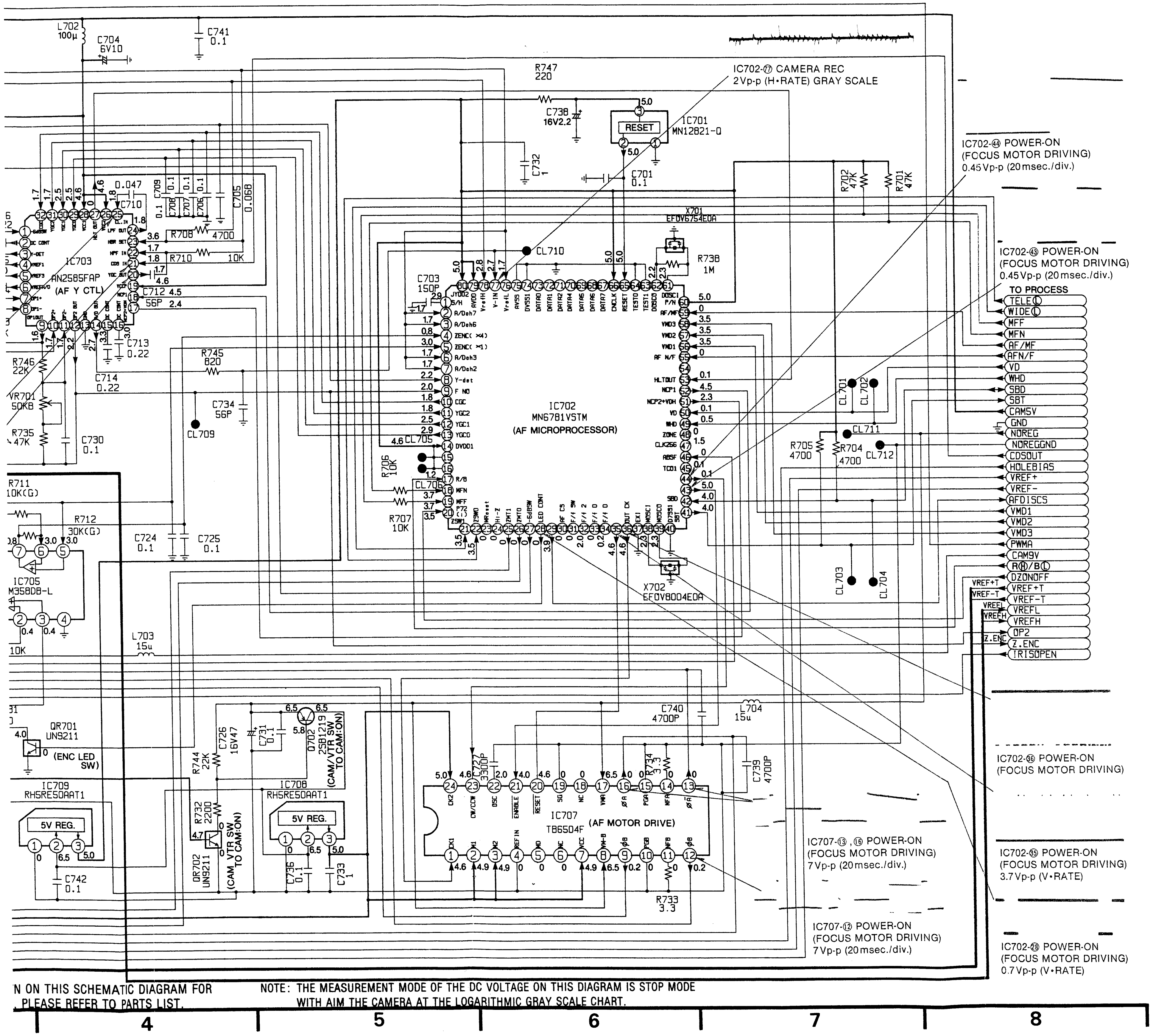
IC703-㉕ CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE

IC703-㉑ CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE

IC703-⑳ CAMERA REC
250mVp-p (H•RATE) GRAY SCALE

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.


L702 100µ
C704 6V10
C741 0.1
R747 220
C738 16V2.2
RESET
IC701 MN12821-Q
C732 1
C701 0.1
R702 47K
R701 47K
X701 EF0V6754E0A
R738 1M
CL710
C703 150P
IC702 MN67B1VSTM (AF MICROPROCESSOR)
IC703 AN2585FAP (AF Y CTL)
C710
C709 0.1
C708 0.1
C707 0.1
C706 0.1
C705 0.068
R708 4700
R710 10K
C712 4.5 56P 2.4
C713 0.22
C714 0.22
R746 22K
VR701 50KB
R735 47K
C730 0.1
R745 820
C734 56P
CL709
CL705
R706 10K
R707 10K
CL701
CL702
CL711
CL712
R705 4700
R704 4700
CL703
CL704
X702 EF0VB004E0A
R711 10K(G)
R712 30K(G)
IC705 M358DB-L
C724 0.1
C725 0.1
L703 15u
QR701 UN9211
(ENC LED SW)
IC709 RH5RE50AAT1
5V REG.
C742 0.1
R744 22K
C726 16V47
C731 0.1
Q702 2SB1219 (CAM/VTR SW TO CAM:ON)
R732 2200
QR702 UN9211 (CAM VTR SW TO CAM:ON)
IC708 RH5RE50AAT1
5V REG.
C735 0.1
C733 1
C727 3300P
IC707 TB6504F (AF MOTOR DRIVE)
R734 3.3
R733 3.3
C740 4700P
L704 15u
C739 4700P
TO PROCESS
TELE Ⓛ
WIDE Ⓛ
MFF
MFN
AF/MF
AFN/F
VD
WHD
SBD
SBT
CAMSV
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
VREF+
VREF-
AFDISCS
VMD1
VMD2
VMD3
PWMA
CAM9V
R(H)/BⓁ
DZONOFF
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
4
5
6
7
8

IC702-⑦ CAMERA REC
2Vp-p (H•RATE) GRAY SCALE

IC702-㊹ POWER-ON
(FOCUS MOTOR DRIVING)
0.45Vp-p (20msec./div.)

IC702-㊸ POWER-ON
(FOCUS MOTOR DRIVING)
0.45Vp-p (20msec./div.)

IC702-㊱ POWER-ON
(FOCUS MOTOR DRIVING)

IC707-⑬, ⑯ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

IC702-㉟ POWER-ON
(FOCUS MOTOR DRIVING)
3.7Vp-p (V•RATE)

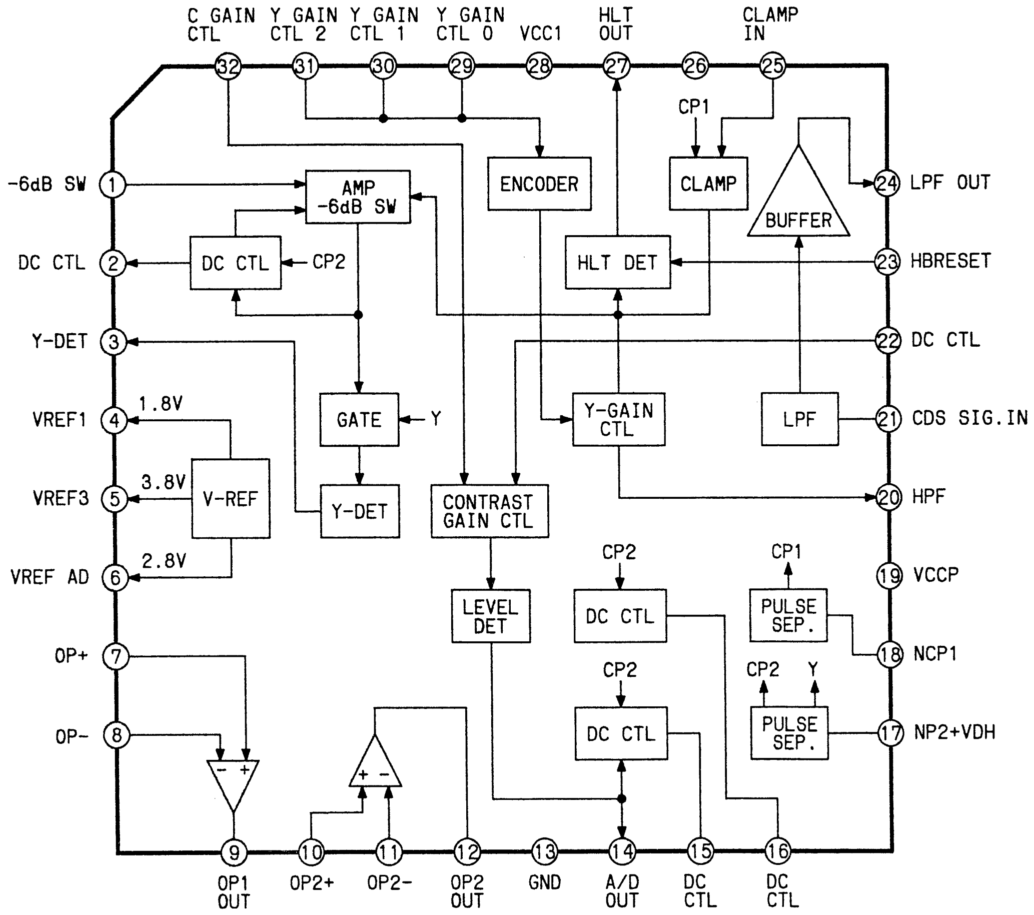
IC707-⑫ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

IC702-㉘ POWER-ON
(FOCUS MOTOR DRIVING)
0.7Vp-p (V•RATE)

N ON THIS SCHEMATIC DIAGRAM FOR
PLEASE REFER TO PARTS LIST.

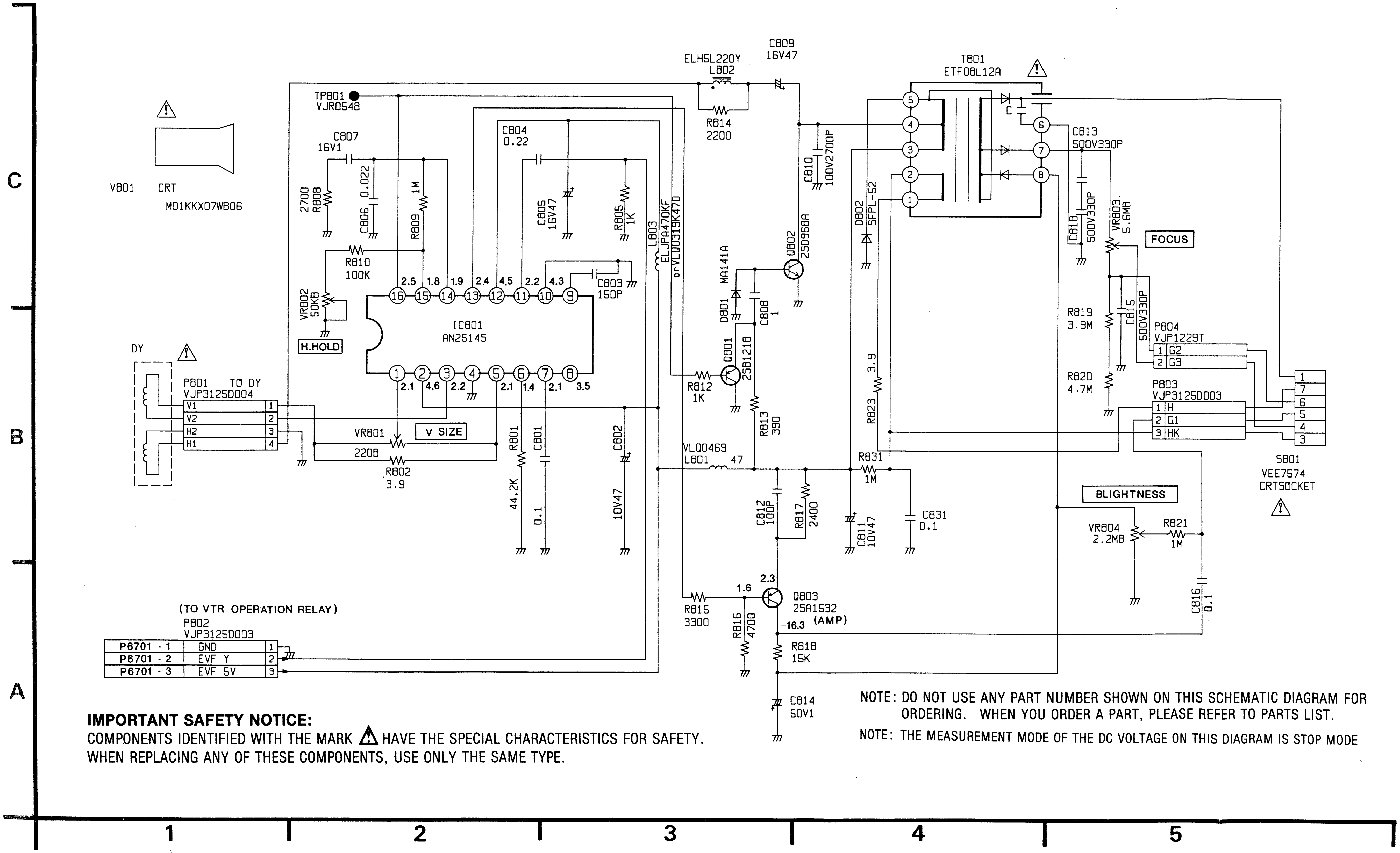
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE
WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

IC703 AN2585FAP


C GAIN CTL ㉜
Y GAIN CTL 2 ㉛
Y GAIN CTL 1 ㉚
Y GAIN CTL 0 ㉙
VCC1 ㉘
HLT OUT ㉗
㉖
CLAMP IN ㉕
-6dB SW ①
DC CTL ②
Y-DET ③
VREF1 ④
VREF3 ⑤
VREF AD ⑥
OP+ ⑦
OP- ⑧
OP1 OUT ⑨
OP2+ ⑩
OP2- ⑪
OP2 OUT ⑫
GND ⑬
A/D OUT ⑭
DC CTL ⑮
DC CTL ⑯
NP2+VDH ⑰
NCP1 ⑱
VCCP ⑲
HPF ⑳
CDS SIG.IN ㉑
DC CTL ㉒
HBRESET ㉓
LPF OUT ㉔
AMP -6dB SW
ENCODER
CLAMP
BUFFER
CP1
DC CTL
CP2
HLT DET
GATE
Y
Y-DET
CONTRAST GAIN CTL
Y-GAIN CTL
LPF
V-REF
1.8V
3.8V
2.8V
LEVEL DET
DC CTL
CP2
DC CTL
CP2
PULSE SEP.
CP1
PULSE SEP.
CP2
Y

Next Page:
EVF Section

3-14. EVF SCHEMATIC DIAGRAM

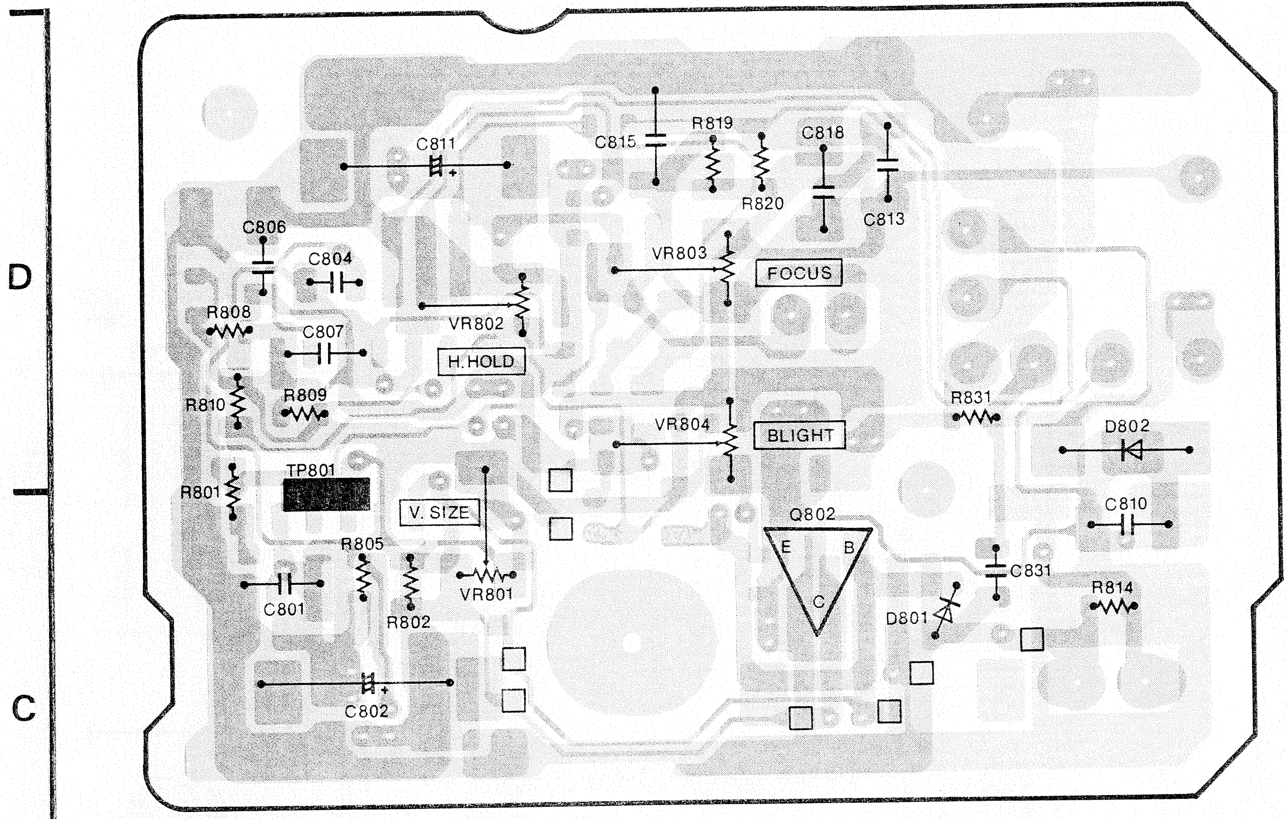

C
B
A
1
2
3
4
5
V801 CRT
M01KKX07WB06
DY
P801 TO DY
VJP3125D004
V1
V2
H2
H1
TP801
VJR0548
C807
16V1
2700
R808
C806 0.022
R809 1M
R810
100K
VR802
50KB
H.HOLD
C804
0.22
C805
16V47
R805
1K
C803
150P
IC801
AN2514S
2.5
1.8
1.9
2.4
4.5
2.2
4.3
2.1
4.6
2.2
2.1
1.4
2.1
3.5
VR801
V SIZE
220B
R802
3.9
R801
44.2K
C801
0.1
C802
10V47
ELH5L220Y
L802
R814
2200
C809
16V47
L803
ELJPA470KF
or VLQ0319K470
C810
100V2700P
Q802
2SD968A
D801 MA141A
C808
1
Q801
2SB1218
R812
1K
R813
390
VLQ0469
L801 47
C812
100P
R817
2400
R815
3300
1.6
2.3
Q803
2SA1532
(AMP)
-16.3
R816
4700
R818
15K
C814
50V1
T801
ETF08L12A
C
D802
SFPL-52
C813
500V330P
C818
500V330P
VR803
5.6MB
FOCUS
R819
3.9M
C815
500V330P
R820
4.7M
R823
3.9
R831
1M
C811
10V47
C831
0.1
P804
VJP1229T
G2
G3
P803
VJP3125D003
H
G1
HK
S801
VEE7574
CRTSOCKET
BLIGHTNESS
VR804
2.2MB
R821
1M
C816
0.1
(TO VTR OPERATION RELAY)
P802
VJP3125D003
P6701 - 1
P6701 - 2
P6701 - 3
GND
EVF Y
EVF 5V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

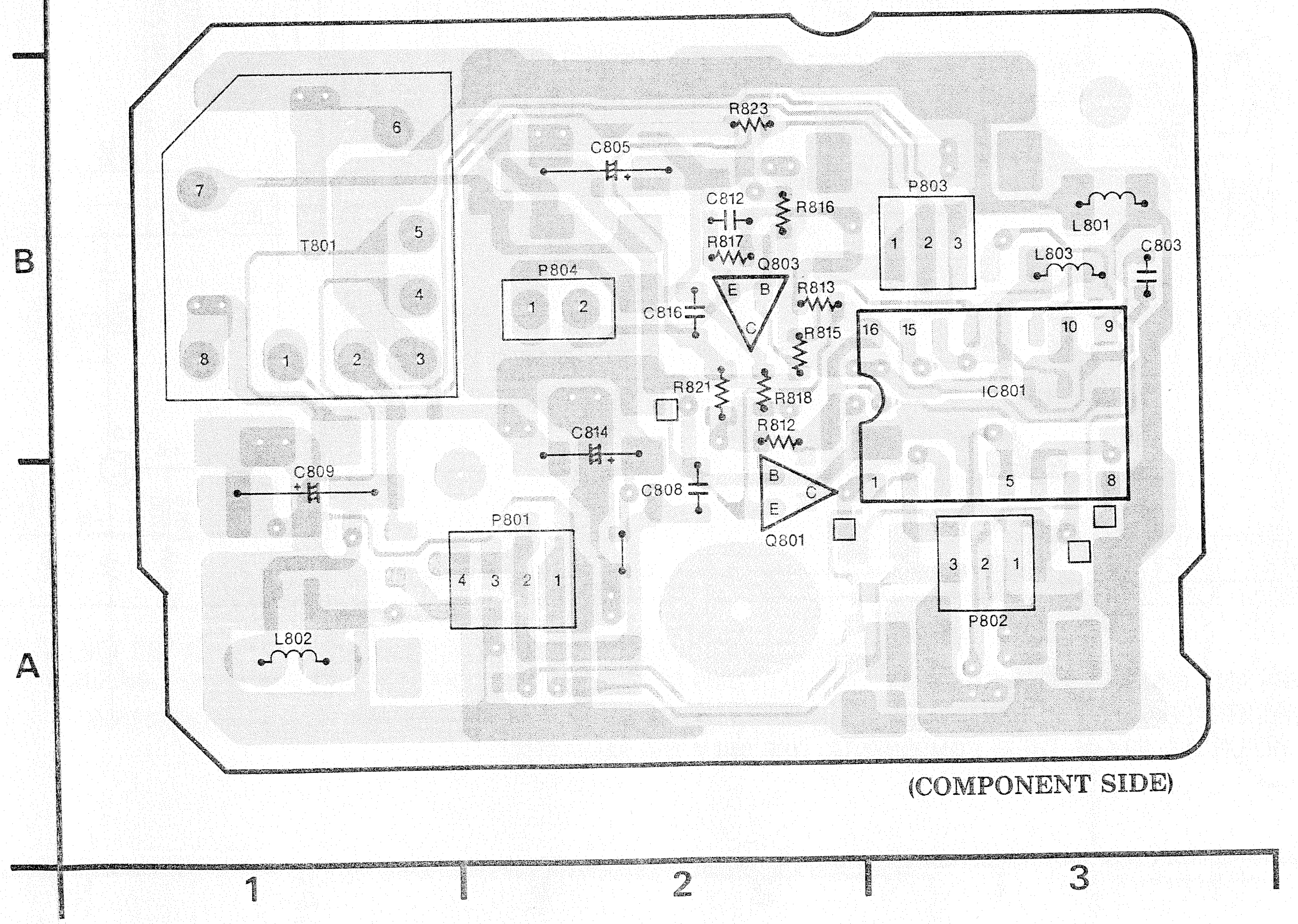
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE

3-15. EVF C.B.A. (VEP28054A)


D
C
C811
C815
R819
C818
R820
C813
C806
C804
R808
VR802
VR803
FOCUS
C807
H. HOLD
R810
R809
VR804
BLIGHT
R831
D802
R801
TP801
V. SIZE
C810
Q802
E
B
C
R805
C831
R814
C801
R802
VR801
D801
C802

(FOIL SIDE)


B
A
1
2
3
T801
6
7
5
4
8
1
2
3
R823
C805
C812
R816
P803
1
2
3
L801
R817
Q803
L803
C803
P804
1
2
E
B
R813
C816
C
R815
16
15
10
9
R821
R818
IC801
C814
R812
C809
B
C808
C
1
5
8
E
Q801
P801
4
3
2
1
3
2
1
P802
L802

(COMPONENT SIDE)

CAMERA C.B.A. ADDRESS INFORMATION

PROCESS Section	
Transistor	
Q305	C-5 Ⓐ
Transistor & Resistor	
QR301	C-9 Ⓑ
Integrated Circuit	
IC301	B-2 Ⓐ
IC302	B-12 Ⓑ
IC303	C-12 Ⓑ
IC304	B-3 Ⓐ
IC305	B-10 Ⓑ
IC306	D-3 Ⓐ
IC307	E-2 Ⓐ
IC308	B-11 Ⓑ
IC309	D-11 Ⓑ
IC310	C-5 Ⓐ
IC311	B-4 Ⓐ
IC312	B-4 Ⓐ
IC315	E-12 Ⓑ
IC316	D-2 Ⓐ
IC317	E-13 Ⓑ
IC318	C-2 Ⓐ
IC319	C-2 Ⓐ
IC320	C-2 Ⓐ
Test Point	
CL302	B-11 Ⓑ
TL321	C-13 Ⓑ
TL322	C-13 Ⓑ
TL323	B-13 Ⓑ
TL324	C-13 Ⓑ
TL325	B-13 Ⓑ
TL326	B-13 Ⓑ
TL327	B-13 Ⓑ
TL328	E-13 Ⓑ
TL329	B-11 Ⓑ
Connector	
B301	A-9 Ⓑ
B302	C-9 Ⓑ
FP301	E-13 Ⓑ
FP302	C-13 Ⓑ

ADDRESS INFORMATION
Ⓐ... A SIDE
Ⓑ... B SIDE

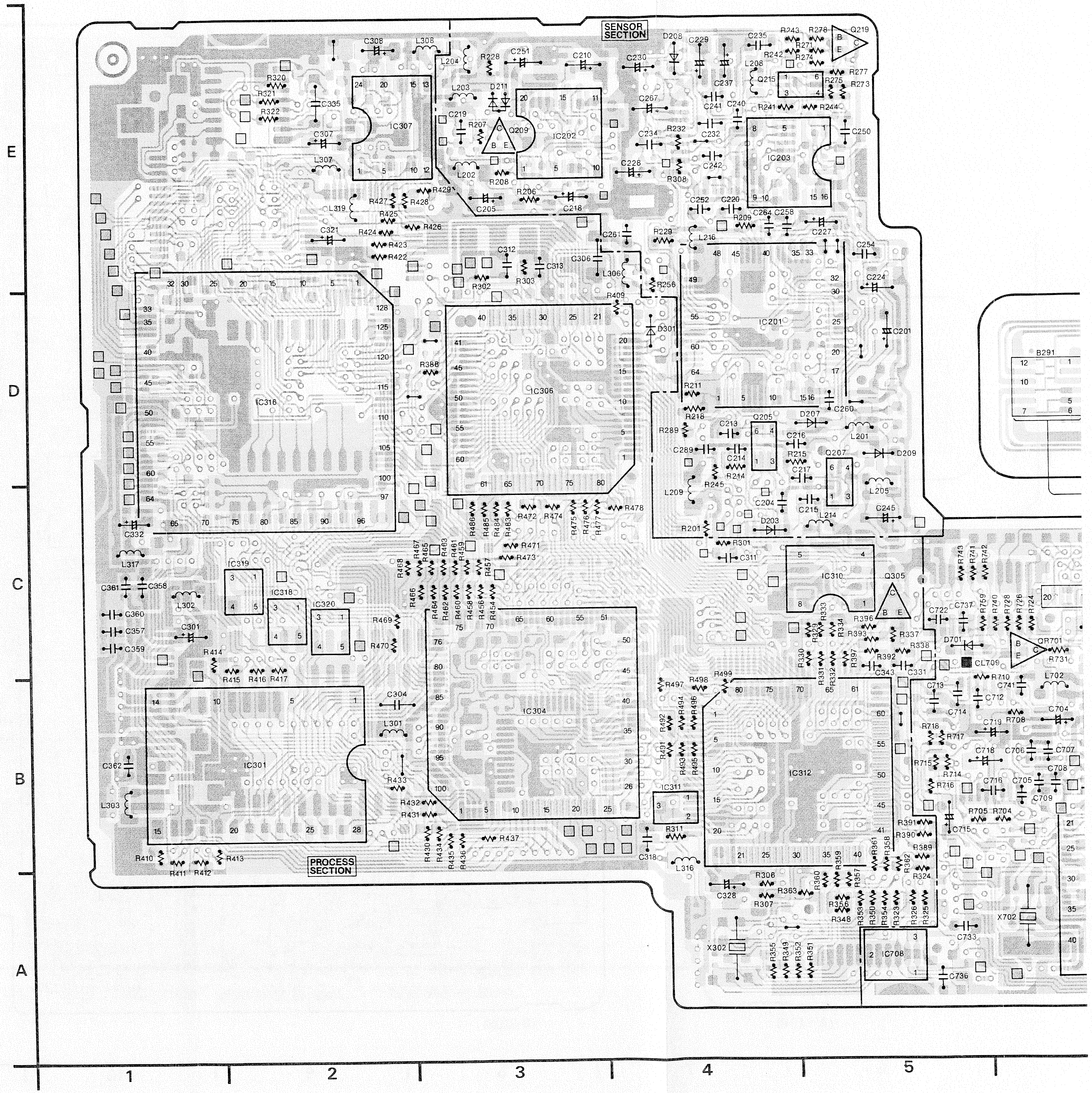
AUTO FOCUS Section	
Transistor	
Q701	C-8 Ⓑ
Q702	A-9 Ⓑ
Transistor & Resistor	
QR701	C-6 Ⓐ
QR702	A-9 Ⓑ
Integrated Circuit	
IC701	A-8 Ⓑ
IC702	A-6 Ⓐ
IC703	B-9 Ⓑ
IC704	C-8 Ⓑ
IC705	B-6 Ⓐ
IC706	A-8 Ⓑ
IC707	B-8 Ⓑ
IC708	A-5 Ⓐ
IC709	B-8 Ⓑ
Test Point	
CL701	B-9 Ⓑ
CL702	B-9 Ⓑ
CL703	A-8 Ⓑ
CL704	A-8 Ⓑ
CL705	B-8 Ⓑ
CL706	B-8 Ⓑ
CL707	B-9 Ⓑ
CL708	B-9 Ⓑ
CL709	C-5 Ⓐ
CL710	B-9 Ⓑ
CL712	A-9 Ⓑ
Adjustment	
VR701	A-9 Ⓑ
Connector	
FP701	C-6 Ⓐ

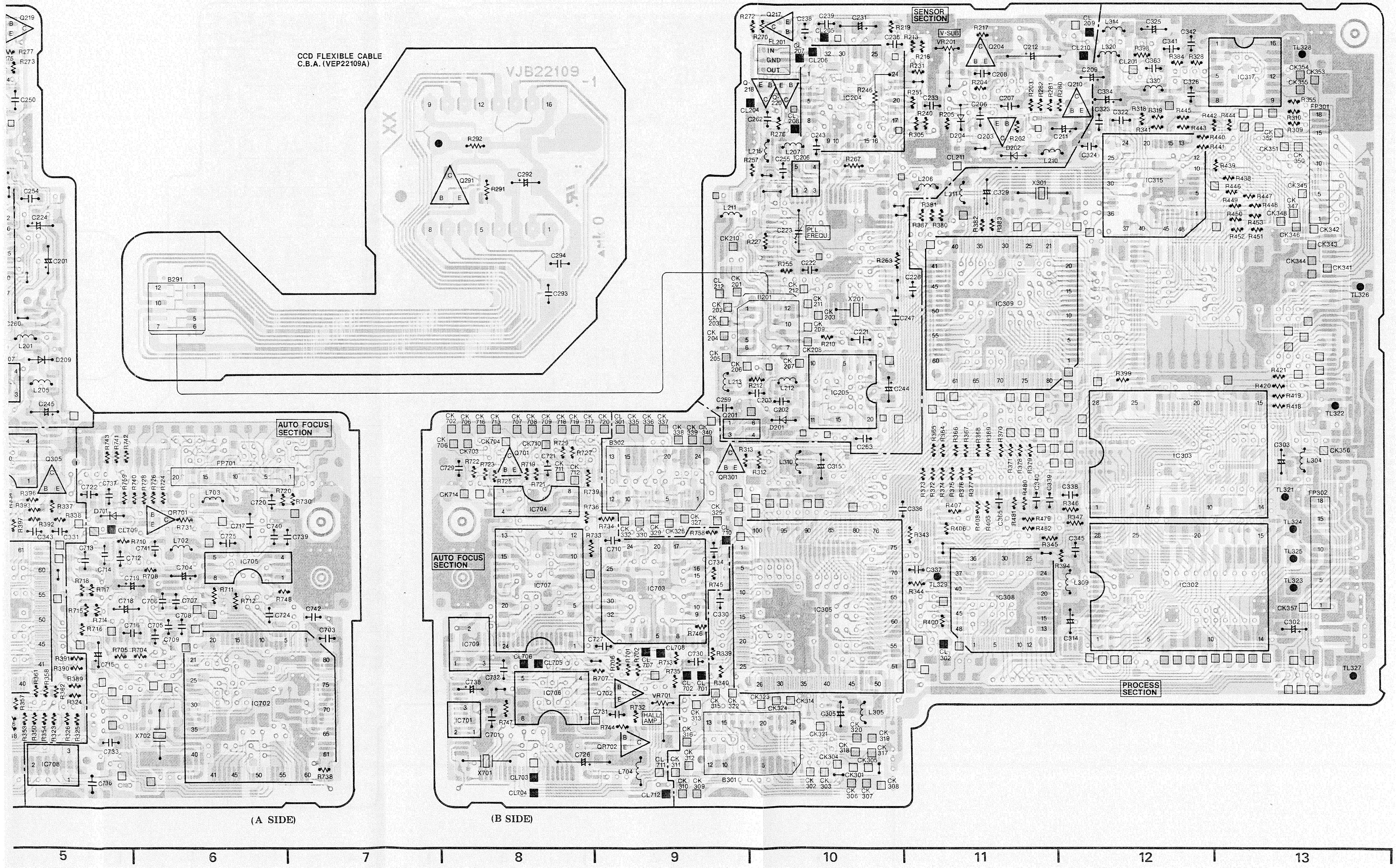
ADDRESS INFORMATION
Ⓐ... A SIDE
Ⓑ... B SIDE

SENSOR Section	
Transistor	
Q201	C-9 Ⓑ
Q203	E-11 Ⓑ
Q204	E-11 Ⓑ
Q205	D-4 Ⓐ
Q207	D-5 Ⓐ
Q209	E-3 Ⓐ
Q210	E-12 Ⓑ
Q215	E-4 Ⓐ
Q217	E-10 Ⓑ
Q218	E-10 Ⓑ
Q219	E-15 Ⓐ
Q220	E-10 Ⓑ
Q291	E-8
Integrated Circuit	
IC201	D-4 Ⓐ
IC202	E-3 Ⓐ
IC203	E-4 Ⓐ
IC204	E-10 Ⓑ
IC205	C-10 Ⓑ
IC206	E-10 Ⓑ
Test Point	
CL204	E-10 Ⓑ
CL205	E-10 Ⓑ
CL206	E-10 Ⓑ
CL207	E-10 Ⓑ
CL208	E-10 Ⓑ
CL209	E-12 Ⓑ
CL210	E-12 Ⓑ
CL211	E-11 Ⓑ
Adjustment	
C223	D-10 Ⓑ
VR201	E-11 Ⓑ
Connector	
B201	D-10 Ⓑ
B291	D-6

ADDRESS INFORMATION
Ⓐ... A SIDE
Ⓑ... B SIDE

3-16. CAMERA (PROCESS, SENSOR & AUTO FOCUS Section) C.B.A. (VEP23152A)

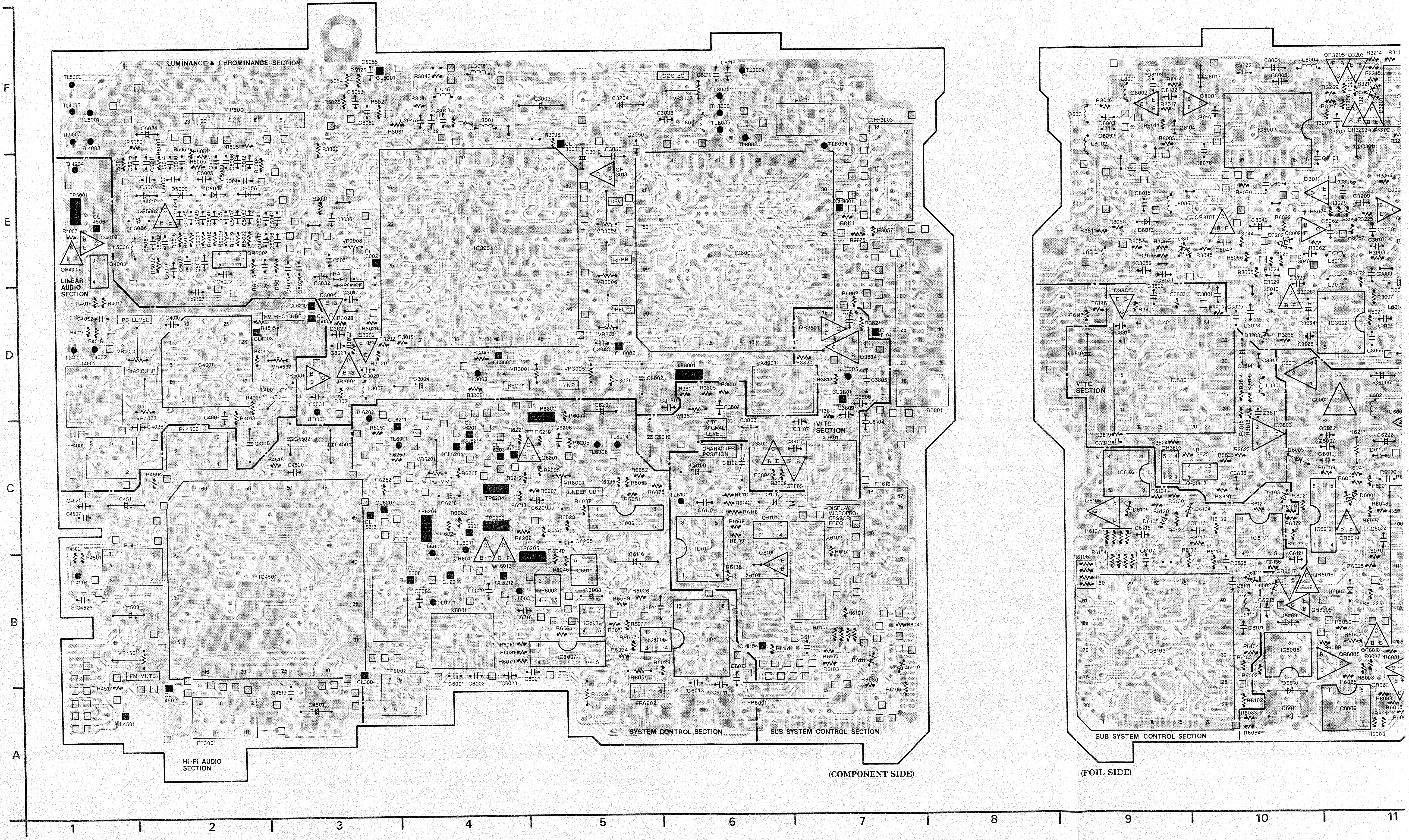

E
D
C
B
A
1
2
3
4
5
SENSOR SECTION
PROCESS SECTION
IC301
IC304
IC306
IC307
IC310
IC311
IC312
IC316
IC318
IC319
IC320
IC201
IC202
IC203
IC708
Q205
Q207
Q209
Q215
Q219
Q305
QR701
B291
X302
X702
CL709


CCD FLEXIBLE CABLE
C.B.A. (VEP22109A)
VJB22109
AUTO FOCUS SECTION
SENSOR SECTION
PROCESS SECTION
V-SUB
PLL FREQU.
HALL AMP
5
6
7
8
9
10
11
12
13

(A SIDE)

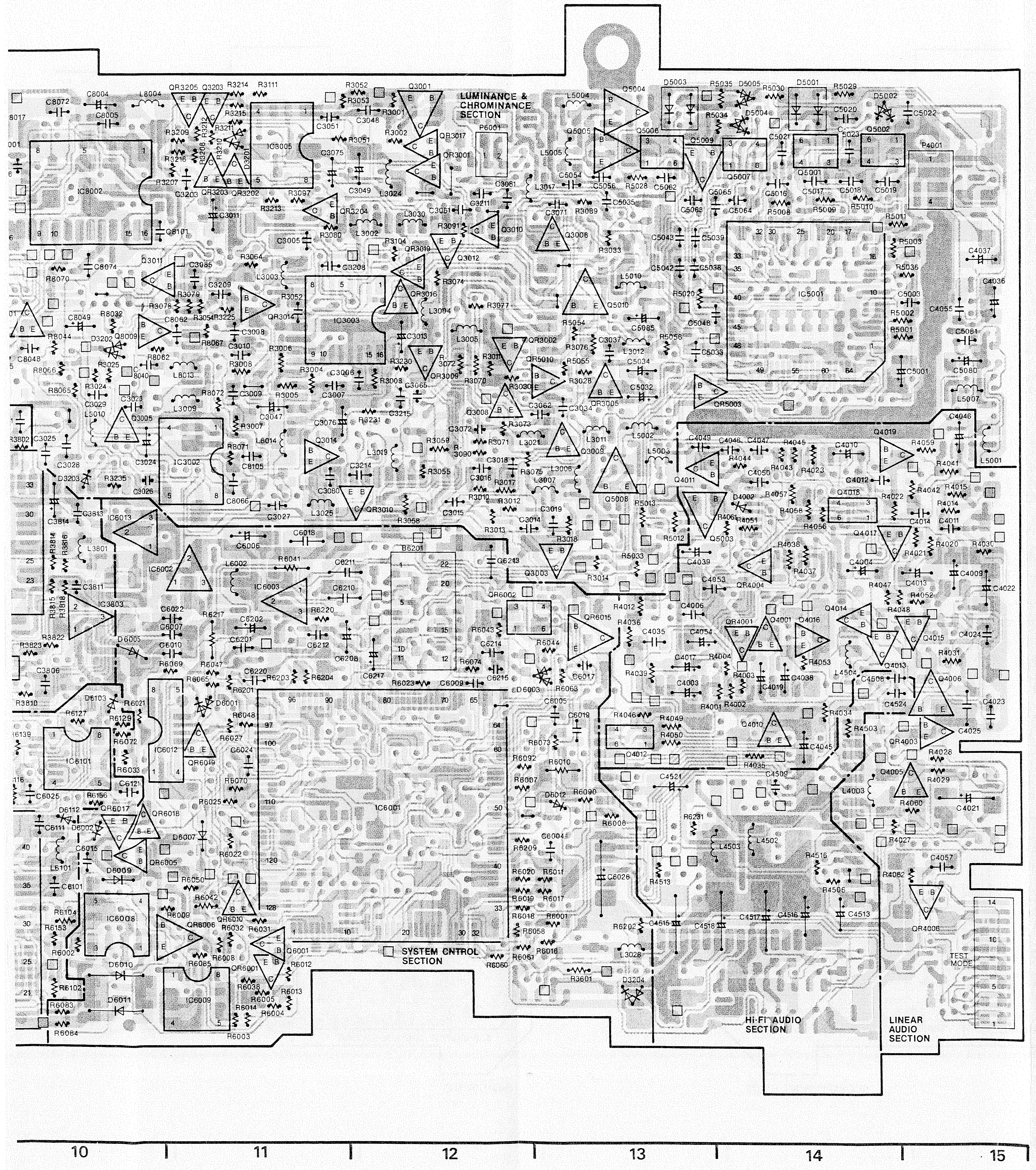
(B SIDE)

3-17. MAIN (SUB SYSTEM CONTROL, SYSTEM CONTROL & SERVO, LUMINANCE & CHROMINANCE, VITC, AUDIO AND Hi-Fi AUDIO Section) C.B.A. (VEP03


LUMINANCE & CHROMINANCE SECTION
LINEAR AUDIO SECTION
Hi-Fi AUDIO SECTION
SYSTEM CONTROL SECTION
SUB SYSTEM CONTROL SECTION
VITC SECTION
HA FREQ RESPONCE
PB LEVEL
FM REC CURR
BIAS CURR
FM MUTE
COS EQ
DEV
S-PB
REC C
REC Y
YNR
PG MM
UNDER CUT
VITC SIGNAL LEVEL
CHARACTER POSITION
DISPLAY MICROPROCESSOR FREQ
IC3001
IC8001
IC4001
IC4501
IC3801
IC8002
IC3002
(COMPONENT SIDE)
(FOIL SIDE)
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

Back Page:
CAMERA Section

Section) C.B.A. (VEP03939A)



MAIN C.B.A. ADDRESS INFORMATION

SYSTEM CONTROL Section	
Transistor	
Q6001	B-11 Ⓕ
Q6201	C-5 Ⓒ
Transistor & Resistor	
QR6001	A-11 Ⓕ
QR6002	C-12 Ⓕ
QR6003	B-5 Ⓒ
QR6005	B-10 Ⓕ
QR6006	B-11 Ⓕ
QR6010	B-11 Ⓕ
QR6013	B-4 Ⓒ
QR6014	B-4 Ⓒ
QR6015	C-13 Ⓕ
QR6017	B-10 Ⓕ
QR6018	B-10 Ⓕ
QR6019	C-11 Ⓕ
Integrated Circuit	
IC6001	B-12 Ⓕ
IC6002	D-11 Ⓕ
IC6003	C-11 Ⓕ
IC6004	B-6 Ⓒ
IC6005	B-5 Ⓒ
IC6006	C-5 Ⓒ
IC6007	B-5 Ⓒ
IC6008	B-10 Ⓕ
IC6009	A-11 Ⓕ
IC6010	B-5 Ⓒ
IC6011	B-5 Ⓒ
IC6012	C-11 Ⓕ
IC6013	D-10 Ⓕ
Test Point	
CL6001	C-4 Ⓒ
CL6201	C-4 Ⓒ
CL6202	C-4 Ⓒ
CL6203	C-4 Ⓒ
CL6204	C-4 Ⓒ
CL6205	C-4 Ⓒ
CL6207	C-3 Ⓒ
CL6208	B-4 Ⓒ
CL6210	D-3 Ⓒ
CL6211	C-3 Ⓒ
CL6212	B-4 Ⓒ
CL6213	C-3 Ⓒ
CL6216	B-4 Ⓒ
TL6001	C-3 Ⓒ
TL6002	C-4 Ⓒ
TL6003	B-4 Ⓒ
TL6004	C-5 Ⓒ
TL6005	D-7 Ⓒ
TL6006	C-5 Ⓒ
TL6011	C-4 Ⓒ
TL6201	B-4 Ⓒ
TL6202	D-3 Ⓒ
TP6201	C-4 Ⓒ
TP6202	D-5 Ⓒ
TP6203	C-4 Ⓒ
TP6204	C-4 Ⓒ
TP6205	B-5 Ⓒ
Adjustment	
VR6001	C-5 Ⓒ
VR6201	C-4 Ⓒ
Connector	
B6001	D-8 Ⓒ
B6201	D-12 Ⓕ
FP6001	A-6 Ⓒ
P6001	F-12 Ⓕ
P6002	B-5 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

SUB SYSTEM CONTROL Section	
Transistor	
Q6101	C-6 Ⓒ
Q6105	B-6 Ⓒ
Q6106	C-9 Ⓕ
Integrated Circuit	
IC6101	C-10 Ⓕ
IC6102	C-9 Ⓕ
IC6103	B-9 Ⓕ
IC6104	B-6 Ⓒ
Test Point	
CL6101	D-7 Ⓒ
CL6104	B-6 Ⓒ
TL6101	C-6 Ⓒ
Adjustment	
C6108	C-6 Ⓒ
C6202	C-6 Ⓒ
Connector	
FP6101	C-7 Ⓒ
P6101	F-7 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

AUDIO Section	
Transistor	
Q4001	C-14 Ⓕ
Q4002	E-1 Ⓒ
Q4003	E-1 Ⓒ
Q4005	B-15 Ⓕ
Q4006	C-15 Ⓕ
Q4010	C-14 Ⓕ
Q4011	D-13 Ⓕ
Q4012	C-13 Ⓕ
Q4013	C-14 Ⓕ
Q4014	C-14 Ⓕ
Q4015	C-15 Ⓕ
Q4016	C-14 Ⓕ
Q4017	D-14 Ⓕ
Q4018	D-14 Ⓕ
Q4019	D-14 Ⓕ
Transistor & Resistor	
QR4001	C-14 Ⓕ
QR4003	C-15 Ⓕ
QR4004	C-14 Ⓕ
QR4005	E-1 Ⓒ
QR4006	B-15 Ⓕ
Integrated Circuit	
IC4001	D-2 Ⓒ
Test Point	
CL4003	D-3 Ⓒ
TL4001	D-1 Ⓒ
TL4002	D-1 Ⓒ
TL4003	F-1 Ⓒ
TL4004	E-1 Ⓒ
TL4005	F-1 Ⓒ
Adjustment	
VR4001	D-1 Ⓒ
VR4002	D-2 Ⓒ
Connector	
FP4001	C-1 Ⓒ
P4001	F-15 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

LUMINANCE & CHROMINANCE Section	
Transistor	
Q3001	F-12 Ⓕ
Q3003	D-13 Ⓕ
Q3004	D-3 Ⓒ
Q3005	D-10 Ⓕ
Q3006	E-13 Ⓕ
Q3008	D-12 Ⓕ
Q3009	D-13 Ⓕ
Q3010	E-12 Ⓕ
Q3011	E-10 Ⓕ
Q3012	E-12 Ⓕ
Q3014	D-11 Ⓕ
Q3202	D-3 Ⓒ
Q3203	F-11 Ⓕ
Q5001	F-14 Ⓕ
Q5002	F-14 Ⓕ
Q5003	D-13 Ⓕ
Q5004	F-13 Ⓕ
Q5005	F-13 Ⓕ
Q5006	F-13 Ⓕ
Q5007	F-14 Ⓕ
Q5008	D-13 Ⓕ
Q5009	F-13 Ⓕ
Q5010	E-13 Ⓕ
Q8001	F-10 Ⓕ
Q8002	F-9 Ⓕ
Q8009	E-10 Ⓕ
Transistor & Resistor	
QR3001	F-12 Ⓕ
QR3002	E-13 Ⓕ
QR3004	D-3 Ⓒ
QR3005	D-13 Ⓕ
QR3009	E-12 Ⓕ
QR3010	D-12 Ⓕ
QR3013	E-5 Ⓒ
QR3014	E-11 Ⓕ
QR3016	E-12 Ⓕ
QR3017	F-12 Ⓕ
QR3019	E-12 Ⓕ
QR3202	F-11 Ⓕ
QR3203	F-11 Ⓕ
QR3204	E-11 Ⓕ
QR3205	F-11 Ⓕ
QR5001	D-3 Ⓒ
QR5002	E-2 Ⓒ
QR5003	D-14 Ⓕ
QR5004	E-2 Ⓒ
QR5010	E-13 Ⓕ
QR8101	E-10 Ⓕ

LUMINANCE & CHROMINANCE Section	
Integrated Circuit	
IC3001	E-4 Ⓒ
IC3002	D-11 Ⓕ
IC3003	E-11 Ⓕ
IC3005	F-11 Ⓕ
IC5001	E-14 Ⓕ
IC8001	E-6 Ⓒ
IC8002	F-10 Ⓕ
Test Point	
CL3001	F-5 Ⓒ
CL3002	E-3 Ⓒ
CL3003	D-4 Ⓒ
CL3004	B-3 Ⓒ
CL5001	A-3 Ⓒ
CL8001	E-7 Ⓒ
CL8002	D-5 Ⓒ
TL3001	D-3 Ⓒ
TL3003	D-3 Ⓒ
TL3004	F-6 Ⓒ
TL5001	F-1 Ⓒ
TL5002	F-1 Ⓒ
TL5003	F-1 Ⓒ
TL8001	F-6 Ⓒ
TL8002	F-6 Ⓒ
TL8004	E-7 Ⓒ
TL8005	F-6 Ⓒ
TL8006	F-6 Ⓒ
TP5001	E-1 Ⓒ
TP8001	D-6 Ⓒ
Adjustment	
VR3001	D-4 Ⓒ
VR3003	E-3 Ⓒ
VR3004	E-5 Ⓒ
VR3005	D-5 Ⓒ
VR3006	E-5 Ⓒ
VR3007	F-6 Ⓒ
VR8001	D-5 Ⓒ
Connector	
FP3001	A-2 Ⓒ
FP3002	B-3 Ⓒ
FP3003	F-7 Ⓒ
FP5001	F-2 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

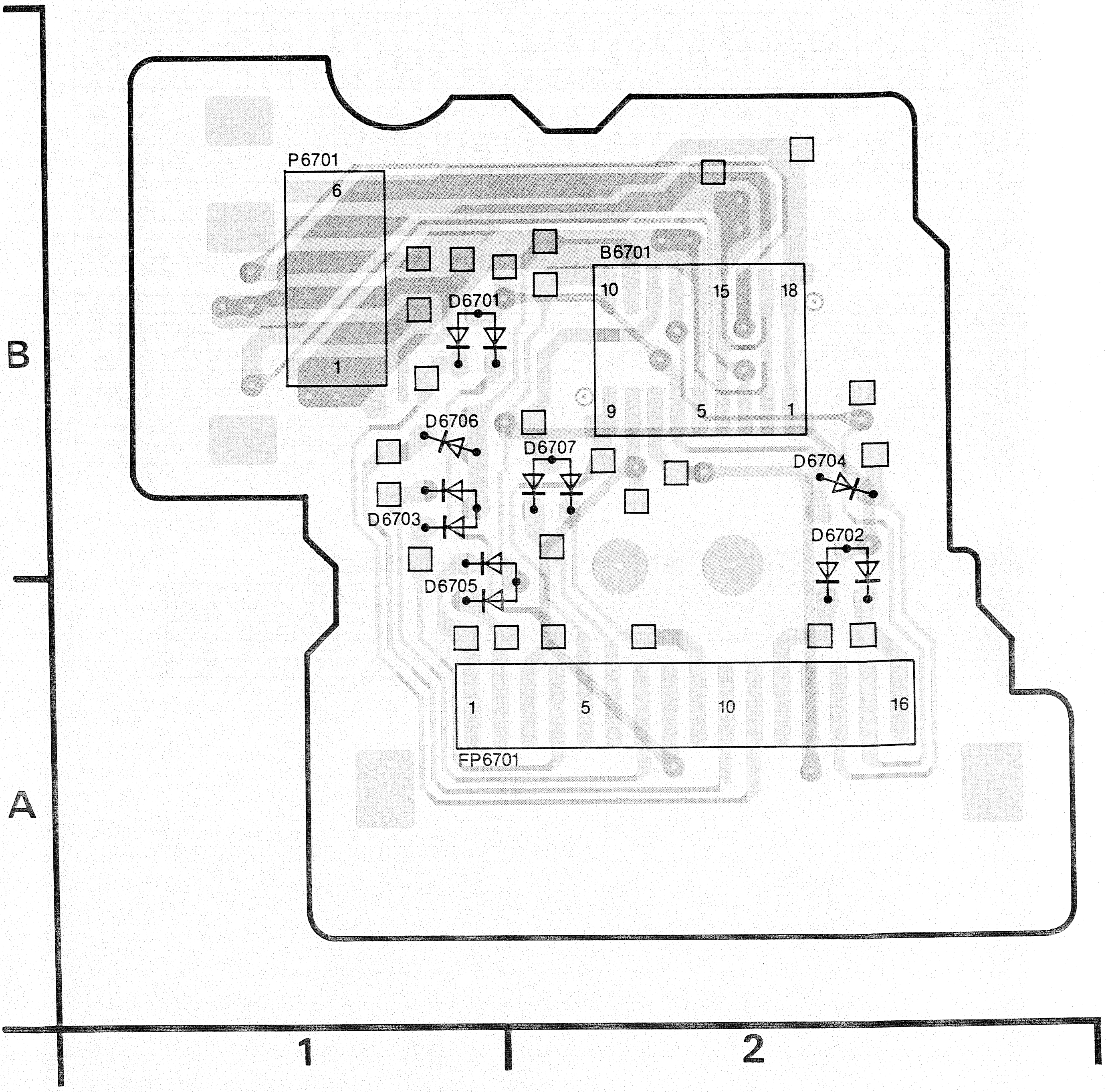
VITC Section	
Transistor	
Q3801	D-9 Ⓕ
Q3802	C-6 Ⓒ
Q3803	C-7 Ⓒ
Q3804	D-7 Ⓒ
Transistor & Resistor	
QR3801	D-7 Ⓒ
QR3802	C-10 Ⓕ
QR3803	C-9 Ⓕ
Integrated Circuit	
IC3801	D-9 Ⓕ
IC3803	C-10 Ⓕ
Test Point	
CL3801	D-7 Ⓒ
Adjustment	
VR3801	C-6 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

Hi-Fi AUDIO Section	
Integrated Circuit	
IC4501	B-2 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-18. VTR OPERATION RELAY C.B.A. (VEP06781A)


P6701
6
1
B6701
10
15
18
9
5
1
D6701
D6706
D6707
D6704
D6703
D6702
D6705
1
5
10
16
FP6701
B
A
1
2

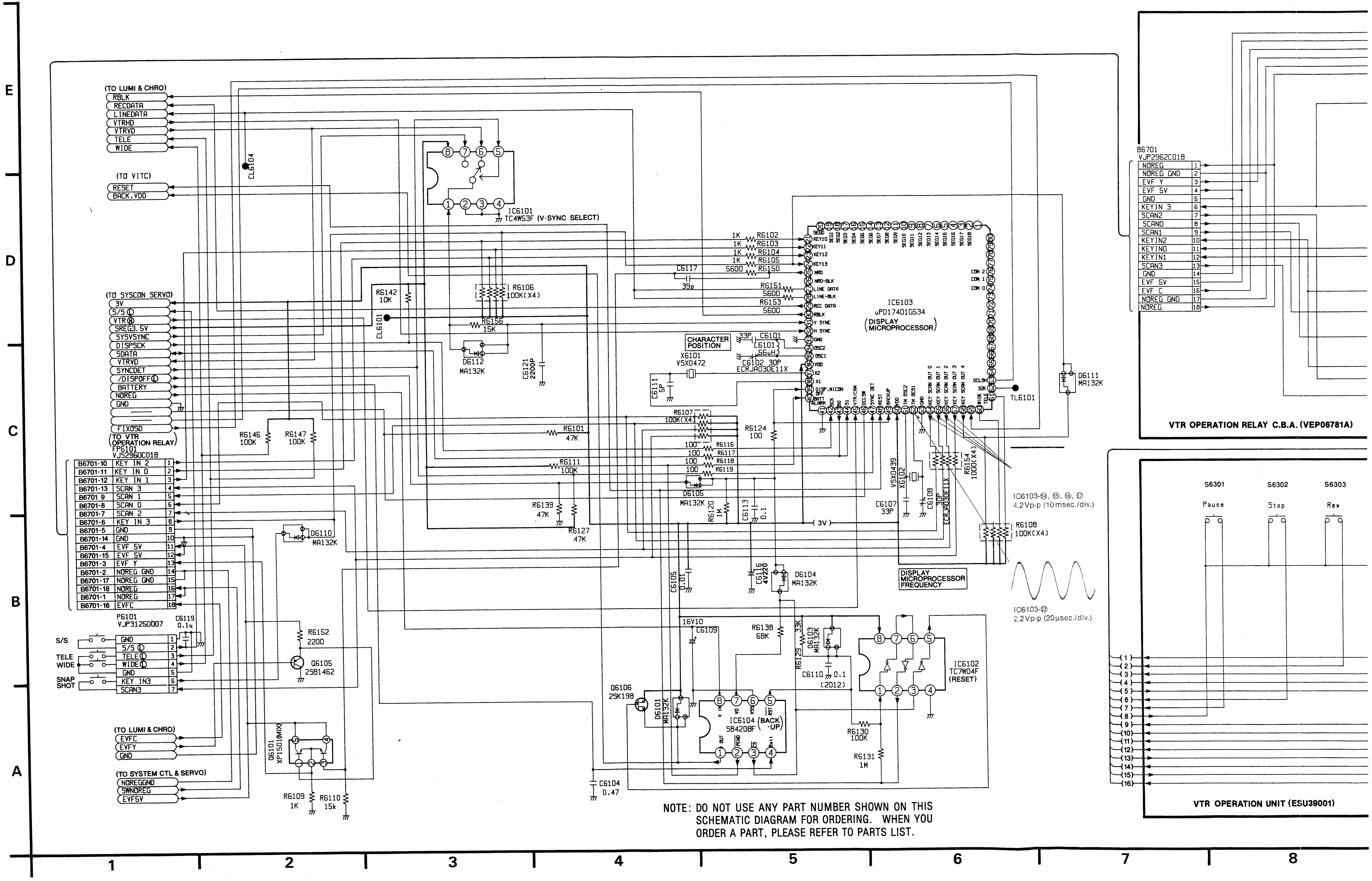
SUB SYSTEM CONTROL ICs VOLTAGE CHART

REF. NO.	IC6101										IC6102									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8		
STOP	3.8	0	0	0	1.0	0	3.7	0			4.2	4.2	4.8	0	0	0	0	2.0		
REC/PLAY	3.8	0	0	0	1.0	4.1	3.7	3.5			4.2	4.2	4.8	0	0	0	0	4.3		
F.F.	3.8	0	0	0	1.0	4.1	3.7	3.5			4.2	4.3	4.8	0	0	0	0	4.3		
REF. NO.	IC6103																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REC/PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REF. NO.	IC6103																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.2	4.2	4.2	4.2	0	0	0	0	0	0	3.3	3.9	0	2.1	0	4.3	2.0	2.2	3.8	0
REC/PLAY	4.2	4.2	4.2	4.2	0	0.1	0	0	0	0	3.8	3.9	0	4.3	4.3	4.3	2.0	2.2	3.8	0
F.F.	4.2	4.2	4.2	4.2	0	0.1	0	0	0	0	3.8	0	0	2.1	2.1	4.3	2.0	2.2	3.8	0
REF. NO.	IC6103																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	3.5	3.5	3.5	3.7	4.2	1.0	4.3	3.8	4.3	1.9	2.0	0	0	0	4.2	0	4.2	0	4.2
REC/PLAY	0	3.5	3.3	3.3	0.1	4.2	0	4.3	0	4.3	1.9	2.0	0	4.2	4.2	0	4.2	4.2	0	4.3
F.F.	0	3.5	3.5	3.5	3.7	4.2	1.0	4.3	3.8	4.3	1.9	2.0	0	4.2	4.2	4.2	0	0	0	4.2
REF. NO.	IC6103																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REC/PLAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F.F.	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
REF. NO.	IC6104																			
MODE	1	2	3	4	5	6	7	8												
STOP	4.9	0	5.8	0	4.3	0	5.0	0												
REC/PLAY	0	0	4.8	0	4.3	0	0	6.1												
F.F.	5.1	0	5.0	0	4.5	0	0	6.2												

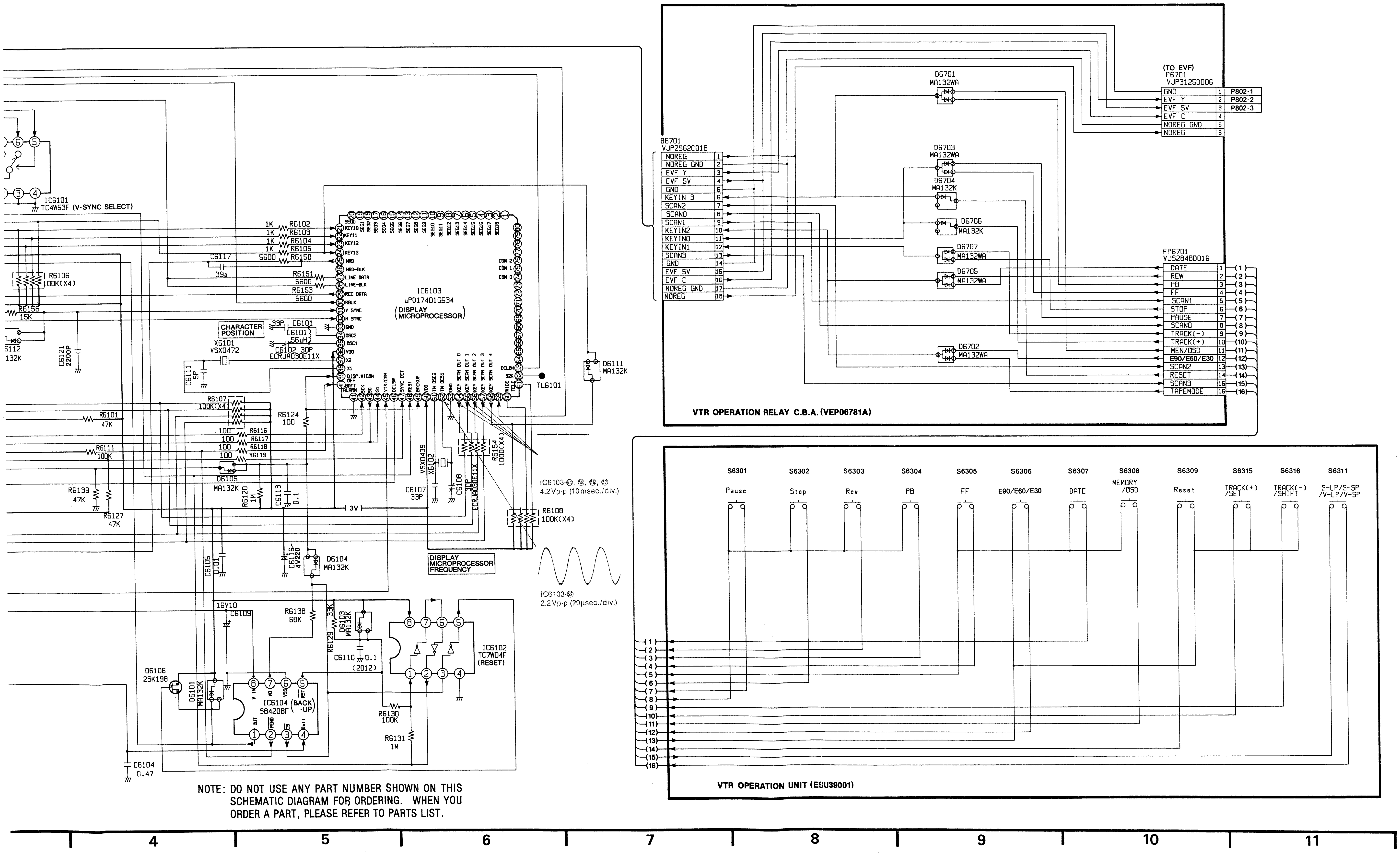
SUB SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6101						Q6105			Q6106								
MODE	1	2	3	4	5		E	C	B	S	D	G						
STOP	2.3	0	0	4.7	4.7		2.3	0	1.7	4.3	0	4.9						
REC/PLAY	2.3	0	0	4.7	4.7		2.3	0	1.7	4.3	0	4.9						
F.F.	2.3	1.7	0.1	4.7	0		0	0	2.0	4.3	0	4.9						

3-19. SUB SYSTEM CONTROL SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
(TO LUMI & CHRO)
RBLK
RECDATA
LINEDATA
VTRHD
VTRVD
TELE
WIDE
(TO VITC)
RESET
BACK.VDD
(TO SYSCON SERVO)
3V
S/S Ⓛ
VTR Ⓗ
SREG3.5V
SYSVSYNC
DISPSCK
SDATA
VTRVD
SYNCDET
/DISPOFF Ⓛ
BATTERY
NOREG
GND
FIXOSD
(TO VTR OPERATION RELAY)
FP6101
VJ5296OC018
B6701-10 KEY IN 2
B6701-11 KEY IN 0
B6701-12 KEY IN 1
B6701-13 SCAN 3
B6701 9 SCAN 1
B6701-8 SCAN 0
B6701-7 SCAN 2
B6701-6 KEY IN 3
B6701-5 GND
B6701-14 GND
B6701-4 EVF 5V
B6701-15 EVF 5V
B6701-3 EVF Y
B6701-2 NOREG GND
B6701-17 NOREG GND
B6701-18 NOREG
B6701-1 NOREG
B6701-16 EVFC
P6101
VJP3125D007
C6119 0.1u
S/S
TELE
WIDE
SNAP SHOT
GND
S/S Ⓛ
TELE Ⓛ
WIDE Ⓛ
GND
KEY IN3
SCAN3
(TO LUMI & CHRO)
EVFC
EVFY
GND
(TO SYSTEM CTL & SERVO)
NOREGGND
SWNOREG
EVF5V
CL6104
IC6101
TC4W53F (V-SYNC SELECT)
R6142 10K
CL6101
R6106 100K(X4)
R6156 15K
D6112 MA132K
C6121 2200P
R6146 100K
R6147 100K
D6110 MA132K
R6152 2200
Q6105 2SB1462
Q6101 XP1501(MIX)
R6109 1K
R6110 15k
R6139 47K
R6127 47K
R6101 47K
R6111 100K
C6117 39p
1K R6102
1K R6103
1K R6104
1K R6105
5600 R6150
R6151 5600
R6153 5600
5600
CHARACTER POSITION
X6101 VSX0472
33P C6101
L6101 56uH
C6102 30P
ECRJA030E11X
C6111 5P
R6107 100K(X4)
R6124 100
100 R6116
100 R6117
100 R6118
100 R6119
D6105 MA132K
R6120 1M
C6113 0.1
(3V)
C6105 0.01
C6116 4V220
D6104 MA132K
16V10 C6109
R6138 68K
33K
D6103 MA132K
R6129
C6110 0.1 (2012)
Q6106 2SK198
D6101 MA132K
IC6104 (BACK-UP) S8420BF
R6130 100K
R6131 1M
C6104 0.47
IC6102 TC7W04F (RESET)
IC6103
uPD17401G534
(DISPLAY MICROPROCESSOR)
TL6101
D6111 MA132K
VSX0439 X6102
C6107 33P
C6108 30P
ECRJA030E11X
R6154 100(X4)
R6108 100K(X4)
DISPLAY MICROPROCESSOR FREQUENCY
IC6103-㊴, ㊵, ㊶, ㊷
4.2Vp-p (10msec./div.)
IC6103-㊸
2.2Vp-p (20μsec./div.)
B6701
VJP2962C018
NOREG
NOREG GND
EVF Y
EVF 5V
GND
KEYIN 3
SCAN2
SCAN0
SCAN1
KEYIN2
KEYIN0
KEYIN1
SCAN3
GND
EVF 5V
EVF C
NOREG GND
NOREG
VTR OPERATION RELAY C.B.A. (VEP06781A)
S6301 Pause
S6302 Stop
S6303 Rev
VTR OPERATION UNIT (ESU39001)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

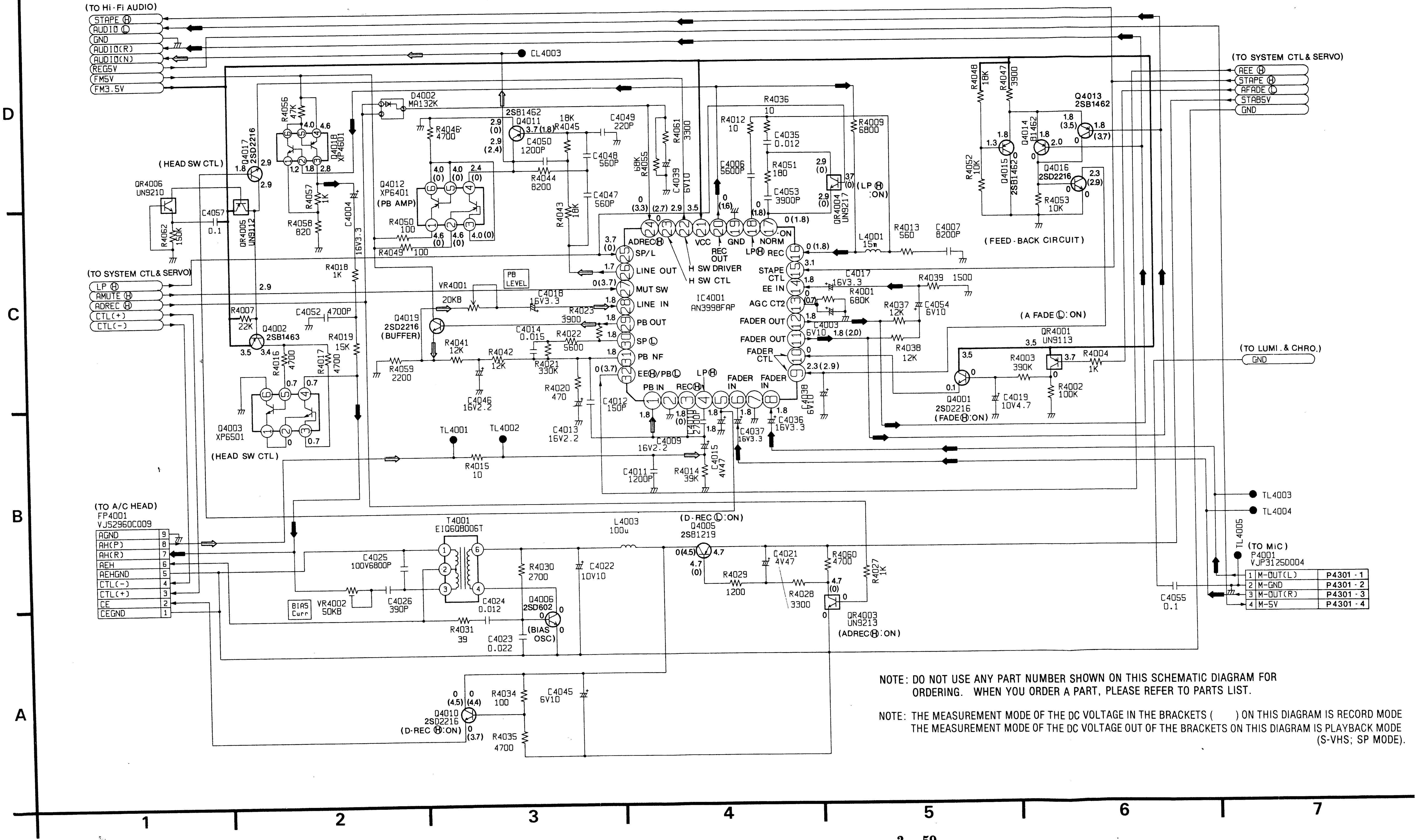

IC6101
TC4W53F (V-SYNC SELECT)
R6106
100K(X4)
R6156
15K
R6112
132K
C6121
2200P
R6102 1K
R6103 1K
R6104 1K
R6105 1K
R6150 5600
C6117
39p
R6151 5600
R6153 5600
5600
IC6103
uPD17401G534
(DISPLAY MICROPROCESSOR)
CHARACTER POSITION
X6101
VSX0472
C6101 33P
L6101 56uH
C6102 30P
ECRJA030E11X
C6111
5P
R6107
100K(X4)
R6124
100
R6101
47K
R6116 100
R6117 100
R6118 100
R6119 100
R6111
100K
D6105
MA132K
R6139
47K
R6127
47K
R6120
1M
C6113
0.1
(3V)
C6105
0.01
C6116
4V220
D6104
MA132K
X6102
VSX0439
C6107
33P
C6108
30P
ECRJA030E11X
R6154
100K(X4)
R6108
100K(X4)
DISPLAY MICROPROCESSOR FREQUENCY
TL6101
D6111
MA132K
IC6103-㊺, ㊻, ㊾, ㊿
4.2Vp-p (10msec./div.)
IC6103-㊺
2.2Vp-p (20μsec./div.)
16V10
C6109
R6138
68K
R6129
33K
D6103
MA132K
C6110 0.1
(2012)
IC6102
TC7W04F
(RESET)
Q6106
2SK198
D6101
MA132K
IC6104 (BACK-UP)
S8420BF
R6130
100K
R6131
1M
C6104
0.47
(TO EVF)
P6701
VJP3125D006
GND 1 P802-1
EVF Y 2 P802-2
EVF 5V 3 P802-3
EVF C 4
NOREG GND 5
NOREG 6
B6701
VJP2962C018
NOREG 1
NOREG GND 2
EVF Y 3
EVF 5V 4
GND 5
KEYIN 3 6
SCAN2 7
SCAN0 8
SCAN1 9
KEYIN2 10
KEYIN0 11
KEYIN1 12
SCAN3 13
GND 14
EVF 5V 15
EVF C 16
NOREG GND 17
NOREG 18
D6701
MA132WA
D6703
MA132WA
D6704
MA132K
D6706
MA132K
D6707
MA132WA
D6705
MA132WA
D6702
MA132WA
FP6701
VJS2848D016
DATE 1
REW 2
PB 3
FF 4
SCAN1 5
STOP 6
PAUSE 7
SCAN0 8
TRACK(-) 9
TRACK(+) 10
MEN/OSD 11
E90/E60/E30 12
SCAN2 13
RESET 14
SCAN3 15
TAPEMODE 16
VTR OPERATION RELAY C.B.A. (VEP06781A)
S6301 Pause
S6302 Stop
S6303 Rew
S6304 PB
S6305 FF
S6306 E90/E60/E30
S6307 DATE
S6308 MEMORY /OSD
S6309 Reset
S6315 TRACK(+) /SET
S6316 TRACK(-) /SHIFT
S6311 S-LP/S-SP /V-LP/V-SP
VTR OPERATION UNIT (ESU39001)
4
5
6
7
8
9
10
11

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Next Page:
AUDIO Section

3-20. AUDIO SCHEMATIC DIAGRAM

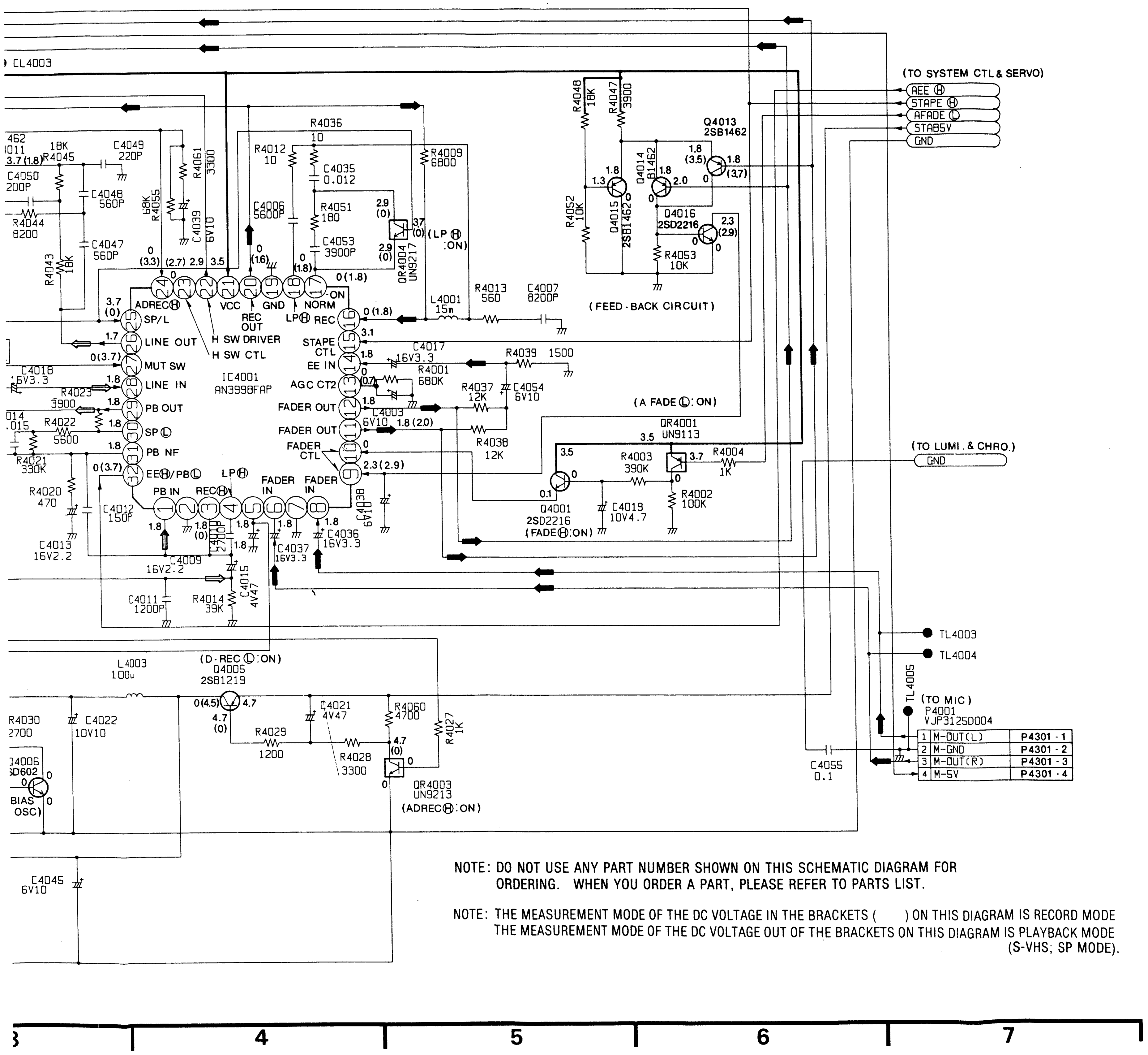
◀ MAIN SIGNAL PATH IN REC MODE
◁ MAIN SIGNAL PATH IN PLAYBACK MODE


(TO Hi-Fi AUDIO)
STAPE Ⓗ
AUDIO Ⓛ
GND
AUDIO(R)
AUDIO(N)
REG5V
FM5V
FM3.5V
CL4003
(TO SYSTEM CTL & SERVO)
AEE Ⓗ
STAPE Ⓗ
AFADE Ⓛ
STAB5V
GND
(HEAD SW CTL)
QR4006
UN9210
Q4017
2SD2216
Q4018
XP4601
R4056
47K
R4057
1K
R4058
820
C4057
0.1
R4062
150K
QR4005
UN9112
C4004
16V3.3
D4002
MA132K
Q4011
2SB1462
R4046
4700
18K
R4045
C4049
220P
C4050
1200P
C4048
560P
C4047
560P
R4044
8200
R4043
18K
Q4012
XP6401
(PB AMP)
R4050
100
R4049
100
R4055
68K
R4061
3300
C4039
6V10
R4036
10
R4012
10
C4035
0.012
C4006
5600P
R4051
180
C4053
3900P
R4009
6800
QR4004
UN9217
(LP Ⓗ :ON)
L4001
15m
R4013
560
C4007
8200P
R4048
18K
R4047
3900
Q4013
2SB1462
Q4014
2SB1462
Q4015
2SB1462
Q4016
2SD2216
R4052
10K
R4053
10K
(FEED-BACK CIRCUIT)
(TO SYSTEM CTL & SERVO)
LP Ⓗ
AMUTE Ⓗ
ADREC Ⓗ
CTL(+)
CTL(-)
R4018
1K
R4007
22K
Q4002
2SB1463
C4052
4700P
R4019
15K
R4016
4700
R4017
4700
Q4003
XP6501
(HEAD SW CTL)
VR4001
20KB
PB LEVEL
Q4019
2SD2216
(BUFFER)
C4018
16V3.3
R4023
3900
C4014
0.015
R4022
5600
R4041
12K
R4042
12K
R4059
2200
R4021
330K
C4046
16V2.2
R4020
470
C4012
150P
C4013
16V2.2
TL4001
TL4002
R4015
10
C4009
16V2.2
C4011
1200P
R4014
39K
C4015
4V47
C4010
270P
C4037
16V3.3
C4036
16V3.3
C4038
6V10
IC4001
AN3998FAP
ADREC Ⓗ
SP/L
LINE OUT
MUT SW
LINE IN
PB OUT
SP Ⓛ
PB NF
EE Ⓗ/PB Ⓛ
PB IN
REC Ⓗ
LP Ⓗ
FADER IN
FADER IN
VCC
GND
REC OUT
NORM
LP Ⓗ REC
H SW DRIVER
H SW CTL
STAPE CTL
EE IN
AGC CT2
FADER OUT
FADER OUT
FADER CTL
C4017
16V3.3
R4039
1500
R4001
680K
R4037
12K
C4054
6V10
C4003
6V10
R4038
12K
(A FADE Ⓛ: ON)
QR4001
UN9113
R4003
390K
R4004
1K
R4002
100K
Q4001
2SD2216
(FADE Ⓗ: ON)
C4019
10V4.7
(TO LUMI. & CHRO.)
GND
TL4003
TL4004
TL4005
(TO A/C HEAD)
FP4001
VJS2960C009
AGND
AH(P)
AH(R)
AEH
AEHGND
CTL(-)
CTL(+)
CE
CEGND
T4001
EI0608006T
C4025
100V6800P
VR4002
50KB
BIAS Curr
C4026
390P
C4024
0.012
R4031
39
C4023
0.022
R4030
2700
C4022
10V10
L4003
100u
Q4006
2SD602
(BIAS OSC)
(D-REC Ⓛ: ON)
Q4005
2SB1219
R4029
1200
C4021
4V47
R4028
3300
R4060
4700
R4027
1K
QR4003
UN9213
(ADREC Ⓗ: ON)
(TO MIC)
P4001
VJP3125D004
M-OUT(L)
M-GND
M-OUT(R)
M-5V
P4301-1
P4301-2
P4301-3
P4301-4
C4055
0.1
Q4010
2SD2216
(D-REC Ⓗ: ON)
R4034
100
C4045
6V10
R4035
4700
A
B
C
D
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE (S-VHS; SP MODE).

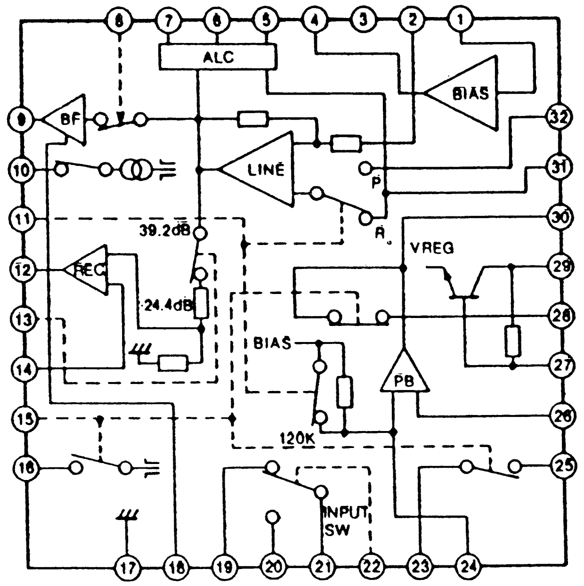
MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE


CL4003
(TO SYSTEM CTL & SERVO)
AEE H
STAPE H
AFADE L
STAB5V
GND
(TO LUMI. & CHRO.)
GND
IC4001
AN3998FAP
ADREC H
SP/L
LINE OUT
MUT SW
LINE IN
PB OUT
SP L
PB NF
EE H/PB L
PB IN
REC H
LP H
VCC
GND
REC OUT
H SW DRIVER
H SW CTL
NORM
ON
LP H REC
STAPE CTL
EE IN
AGC CT2
FADER OUT
FADER CTL
FADER IN
Q4013 2SB1462
Q4014 2SB1462
Q4015 2SB1462
Q4016 2SD2216
(FEED-BACK CIRCUIT)
(A FADE L: ON)
QR4001 UN9113
Q4001 2SD2216 (FADE H: ON)
QR4004 UN9217 (LP H: ON)
L4001 15m
L4003 100u
(D-REC L: ON)
Q4005 2SB1219
QR4003 UN9213 (ADREC H: ON)
Q4006 2SD602 BIAS OSC
TL4003
TL4004
TL4005
(TO MIC)
P4001
VJP3125D004
1 M-OUT(L) P4301-1
2 M-GND P4301-2
3 M-OUT(R) P4301-3
4 M-5V P4301-4
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE (S-VHS; SP MODE).

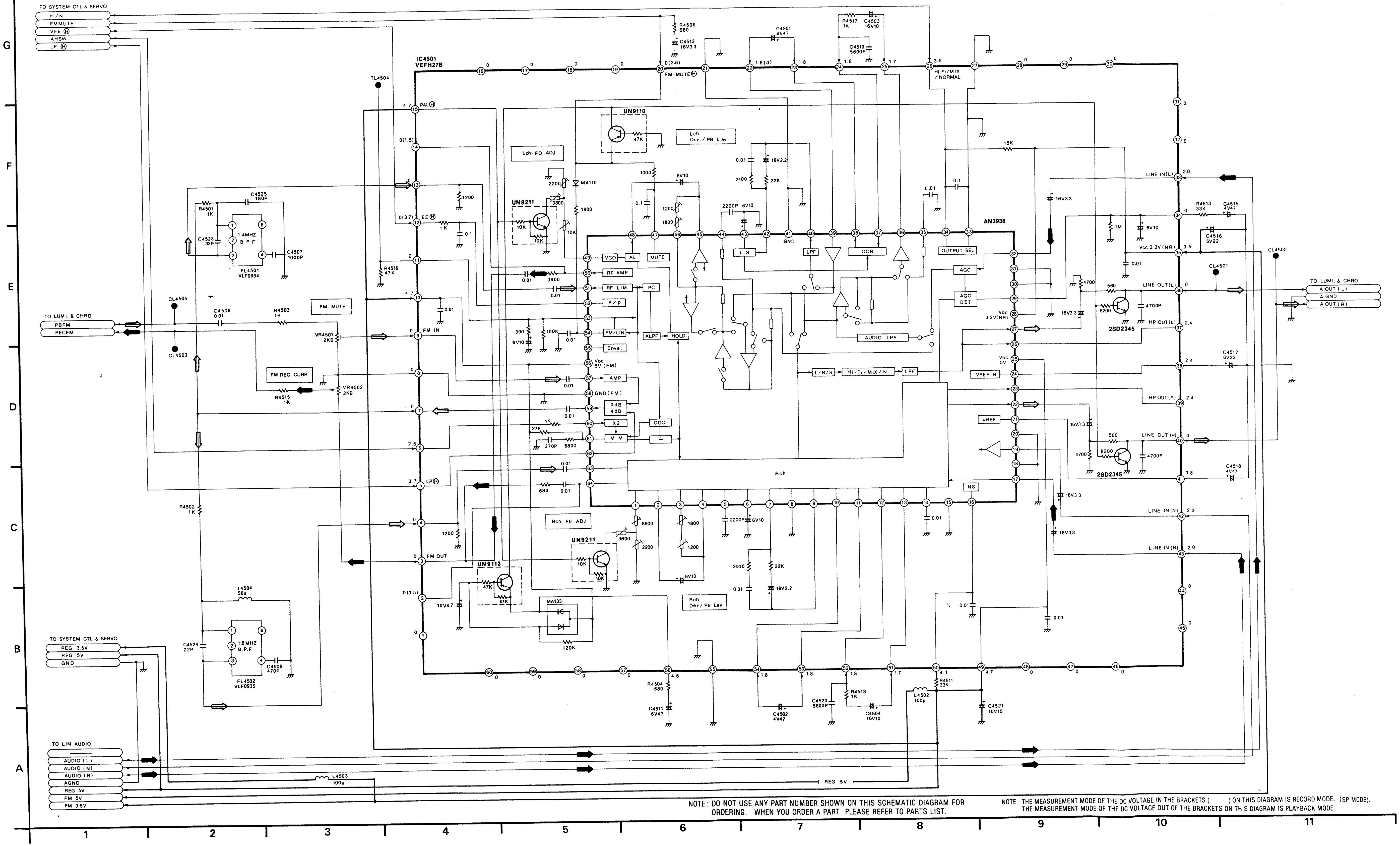
IC4001(BA7757BK)


ALC
BIAS
BF
LINE
P
R
39.2dB
REC
24.4dB
VREG
BIAS
PB
120K
INPUT SW

3-21. Hi-Fi AUDIO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE

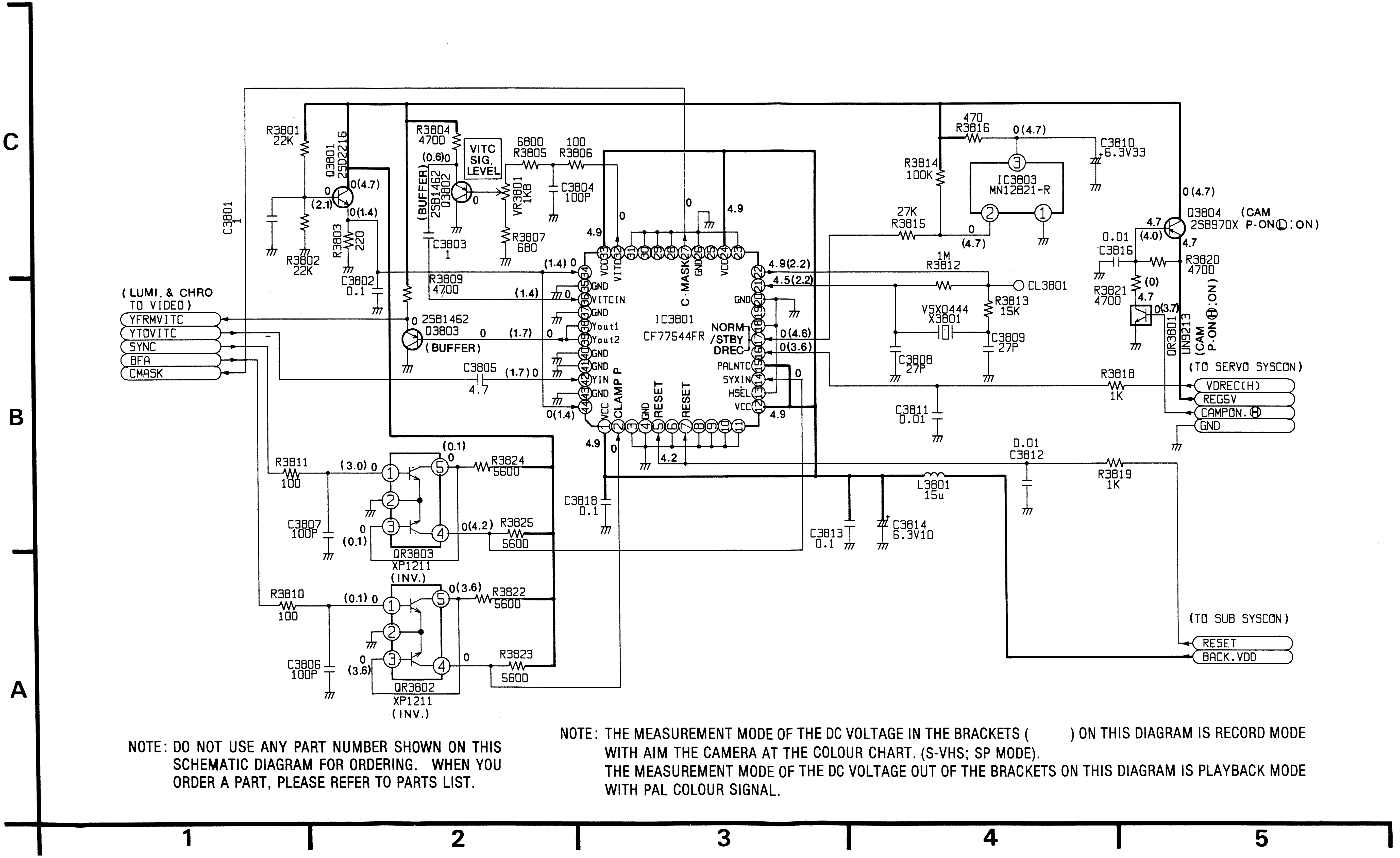
MAIN SIGNAL PATH IN PLAYBACK MODE


TO SYSTEM CTL & SERVO
H/N
FMMUTE
VEE Ⓗ
AHSW
LP Ⓗ
IC4501
VEFH27B
AN3938
UN9110
UN9211
UN9113
2SD2345
MA110
MA133
FL4501
VLF0934
1.4MHZ B.P.F
FL4502
VLF0935
1.8MHZ B.P.F
L4504 56u
L4502 100μ
L4503 100u
R4501 1K
C4525 180P
C4523 33P
C4507 1000P
C4524 22P
C4508 470P
R4502 1K
R4503 1K
C4509 0.01
R4515 1K
VR4501 2KB
VR4502 2KB
R4516 47K
R4506 680
C4513 16V3.3
C4501 4V47
R4517 1K
C4503 16V10
C4519 5600P
R4513 33K
C4515 4V47
C4516 6V22
C4517 6V33
C4518 4V47
R4504 680
C4511 6V47
C4502 4V47
C4520 5600P
R4518 1K
C4504 16V10
R4511 33K
C4521 10V10
TL4504
CL4505
CL4503
CL4502
CL4501
TO LUMI. & CHRO.
PBFM
RECFM
FM MUTE
FM REC CURR
Lch-F0 ADJ
Rch-F0 ADJ
Lch Dev./PB Lev
Rch Dev/PB Lev
VCO
AL
MUTE
RF AMP
RF LIM
PC
R/P
FM/LIN
Enve
ALPF
HOLD
AMP
0dB 4dB
X2
M.M
DOC
L.S
LPF
CCR
OUTPUT SEL
AGC
AGC DET
AUDIO LPF
L/R/S
Hi-Fi/MIX/N
VREF H
VREF
NS
Rch
GND
GND(FM)
Vcc 5V(FM)
Vcc 3.3V(NR)
Vcc 5V
FM·MUTEⒽ
Hi-Fi/MIX/NORMAL
PALⒽ
EEⒽ
LPⒽ
FM IN
FM OUT
LINE IN(L)
LINE OUT(L)
HP OUT(L)
HP OUT(R)
LINE OUT(R)
LINE IN(N)
LINE IN(R)
TO LUMI. & CHRO
A OUT (L)
A GND
A OUT (R)
TO SYSTEM CTL & SERVO
REG 3.5V
REG 5V
GND
TO LIN AUDIO
AUDIO (L)
AUDIO (N)
AUDIO (R)
AGND
REG 5V
FM 5V
FM 3.5V
REG 5V
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE. (SP MODE).
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

3-22. VITC SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
5
(LUMI. & CHRO TO VIDEO)
YFRMVITC
YTOVITC
SYNC
BFA
CMASK
R3801 22K
Q3801 2SD2216
C3801 1
R3802 22K
R3803 220
C3802 0.1
R3804 4700
VITC SIG. LEVEL
(BUFFER) 2SB1462 Q3802
VR3801 1KB
R3805 6800
R3806 100
C3804 100P
C3803 1
R3807 680
R3809 4700
2SB1462 Q3803 (BUFFER)
C3805 4.7
IC3801 CF77544FR
VCC
VITC
C-MASK
GND
VITCIN
Yout1
Yout2
YIN
CLAMP P
RESET
NORM /STBY
DREC
PALNTC
SYXIN
HSEL
C3818 0.1
R3811 100
C3807 100P
QR3803 XP1211 (INV.)
R3824 5600
R3825 5600
R3810 100
C3806 100P
QR3802 XP1211 (INV.)
R3822 5600
R3823 5600
R3816 470
C3810 6.3V33
R3814 100K
IC3803 MN12821-R
R3815 27K
R3812 1M
CL3801
VSX0444 X3801
R3813 15K
C3808 27P
C3809 27P
C3811 0.01
C3813 0.1
C3814 6.3V10
L3801 15u
C3812 0.01
R3819 1K
Q3804 2SB970X (CAM P-ON(L):ON)
C3816 0.01
R3820 4700
R3821 4700
QR3801 UN5213 (CAM P-ON(H):ON)
R3818 1K
(TO SERVO SYSCON)
VDREC(H)
REGSV
CAMPON.(H)
GND
(TO SUB SYSCON)
RESET
BACK.VDD

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. (S-VHS; SP MODE). THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

SYSTEM CONTROL & SERVO ICs VOLTAGE CHART

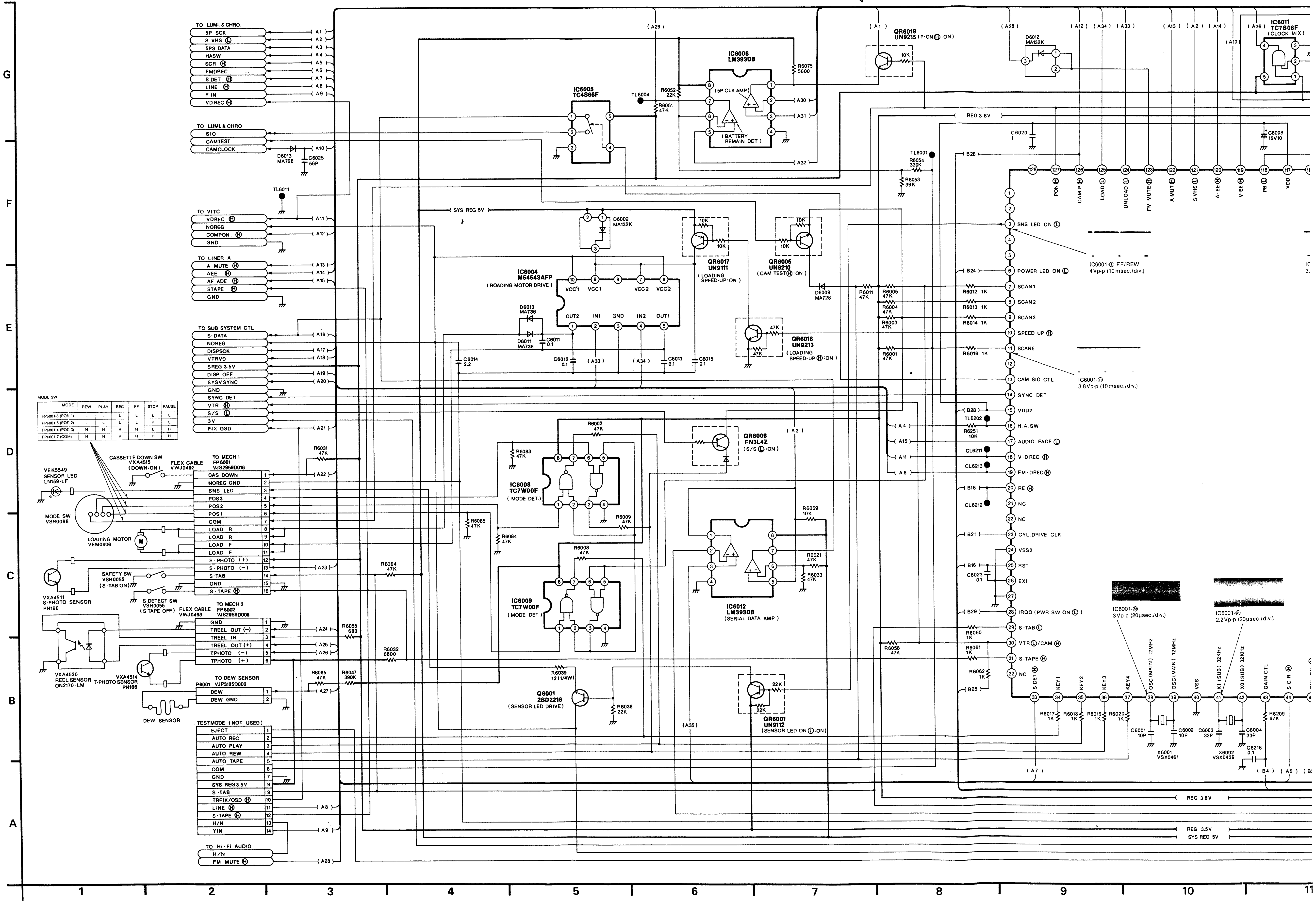
REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	3.7	3.7	3.7	3.7	3.7	0	3.7	3.7	3.7	0	3.6	0	3.7	1.0	3.7	3.7	3.7	0	0	0
REC/PLAY	3.7	3.7	3.7	0	0	0	3.7	3.6	3.7	0	3.6	0	3.7	1.0	3.7	1.9	3.7	3.7	3.7	3.7
F.F.	3.7	3.7	3.4	3.7	3.7	0	3.7	3.6	3.7	0	3.6	0	3.7	1.0	3.7	3.7	0	0	0	0
REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0.1	0.1	1.8	0	3.7	0.2	0	0.5	0	3.6	3.1	0.4	0	3.7	3.7	3.7	3.7	1.9	1.9	0
REC/PLAY	0.5	0.4	1.8	0	3.7	0	0	0.5	0	0.1	3.1	2.9	0.1	3.7	3.7	0	3.7	0	1.9	0
F.F.	0	0	1.8	0	3.6	0	0	0.5	0	3.7	3.1	0	0.1	3.7	3.7	3.7	3.7	0	—	0
REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	1.8	1.7	1.9	0	3.7	3.7	3.8	0	3.7	0	0	3.5	3.5	3.3	3.5	0	0.5	2.4	3.7	3.7
REC/PLAY	1.7	1.7	1.8	0	0	3.7	0	0.7	0.2	1.9	1.9	3.5	3.4	3.3	3.5	0	0.5	0	3.7	3.7
F.F.	1.7	1.7	1.8	0	0	3.7	3.7	0	0	3.7	0	3.6	3.5	3.3	3.5	0	0.5	0	0	0
REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0	3.7	0.1	3.7	0	0	3.7	1.8	0.1	3.7	0.1	3.3	0	1.9	3.5	0	0	1.9	1.9
REC/PLAY	0	0	1.9	0	1.9	0	0	3.7	1.8	0.1	0.9	1.8	1.9	0	1.8	1.8	0.1	0	1.9	1.9
F.F.	0	0	1.9	0	1.9	0	0	3.7	1.9	0.1	0.9	1.8	1.7	0	1.9	1.8	0.1	0	1.9	1.9
REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	1.7	2.0	3.7	0	0	0	1.9	1.9	0	0	1.8	0	0.1	3.3	3.7	0.1	3.5	0	3.7	0
REC/PLAY	1.7	2.0	3.7	1.5	2.1	0	1.9	1.8	0	0	1.9	0	1.6	2.1	3.7	0	3.5	0	3.7	0
F.F.	1.9	1.8	3.7	0	0	0	1.9	1.9	0	0	1.8	0	1.5	2.1	3.7	0	3.5	0	3.7	0
REF. NO.	IC6001																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
STOP	0	3.4	0	0	0	3.7	4.1	0	0	3.7	3.7	3.6	3.5	3.7	3.6	3.7	3.7	0	3.7	3.7
REC/PLAY	0	3.3	0	0	0	3.7	4.1	0	3.7	0	3.7	3.6	3.4	3.7	3.6	3.7	3.7	0	3.7	3.7
F.F.	0	3.4	0	0	0	3.7	4.1	0	0	0	3.7	3.6	3.5	3.7	3.6	3.7	3.7	0	3.7	3.7
REF. NO.	IC6001																			
MODE	121	122	123	124	125	126	127	128												
STOP	0.1	0.1	3.7	0	0	3.7	0.1	0.1												
REC/PLAY	3.6	0	0	0	0	3.7	3.7	0												
F.F.	3.6	3.7	3.7	0	0	3.7	3.7	0												
REF. NO.	IC6002										IC6003									
MODE	1	2	3								1	2	3							
STOP	0	6.2	3.8								0	4.9	3.7							
REC/PLAY	0	6.0	3.8								0	4.9	3.7							
F.F.	0	6.0	3.8								0	4.9	3.7							
REF. NO.	IC6004										IC6005									
MODE	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5					
STOP	0.1	0	0.1	0	0	6.2	4.1	0.1	4.2	6.2	3.5	3.5	0	3.7	3.5					
REC/PLAY	0	0	0	0	0.2	1.0	4.1	2.6	4.1	6.0	3.4	0	0	3.7	3.5					
F.F.	1.0	0	0	0	0.9	6.0	4.1	2.6	4.1	6.0	3.5	3.5	0	3.7	3.5					
REF. NO.	IC6006										IC6007									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8		
STOP	4.6	1.9	3.6	0	3.4	3.0	4.8	0			3.5	3.1	2.9	0	2.1	2.9	3.2	4.8		
REC/PLAY	0	0	3.6	0	3.4	3.0	3.5	4.8			2.5	0.5	0.5	0	2.0	2.9	3.2	4.7		
F.F.	4.6	1.9	3.6	0	3.4	3.0	3.5	4.8			1.8	0.5	0.5	0	3.6	1.7	1.6	3.1		
REF. NO.	IC6008										IC6009									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8		
STOP	3.7	0	3.8	0	0	0	3.7	2.3			0	0	0	0	3.7	3.7	3.8	3.8		
REC/PLAY	0	0	3.7	0	0	3.8	3.8	3.8			0	0	0	0	3.7	3.7	3.8	3.8		
F.F.	0	0	3.7	0	0	3.5	3.8	3.8			0	0	0	0	3.7	3.7	3.8	3.8		
REF. NO.	IC6010										IC6011									
MODE	1	2	3	4	5						1	2	3	4	5					
STOP	3.5	3.6	0	3.3	3.5						3.6	3.3	0	3.3	3.5					
REC/PLAY	3.5	3.6	0	3.3	3.5						3.6	3.3	0	3.3	0					
F.F.	3.5	3.6	0	3.3	3.5						0	3.3	0	3.3	6.0					
REF. NO.	IC6012										IC6013									
MODE	1	2	3	4	5	6	7	8			1	2	3							
STOP	4.6	1.9	3.6	0	4.6	2.4	3.5	4.8			0	6.2	4.9							
REC/PLAY	4.6	1.9	3.6	0	4.6	2.4	3.4	4.7			0	6.0	4.9							
F.F.	4.6	1.9	3.6	0	4.6	2.4	3.5	4.8			0	6.0	4.9							

SYSTEM CONTROL & SERVO TRANSISTORs VOLTAGE CHART

REF. NO.	Q6001			Q6201														
MODE	E	C	B	E	C	B												
STOP	0.1	6.1	0	3.7	3.7	3.2												
REC/PLAY	0.1	0	0	0	0	3.2												
F.F.	0.4	6.0	0.3	6.3	7.8	0.2												
REF. NO.	QR6001			QR6002						QR6003						QR6005		
MODE	E	C	B	1	2	3	4	5	6	1	2	3	4	5		E	C	B
STOP	3.5	0	3.7	0	3.9	2.4	3.9	4.5	4.5	3.7	0.4	6.6	1.7	1.3		3.7	3.7	0
REC/PLAY	3.5	0	3.7	4.7	4.1	4.7	4.7	4.0	4.7	3.7	0	0	0	0		3.7	3.7	0
F.F.	3.5	0.3	3.4	4.7	4.0	4.7	4.7	4.0	4.8	3.7	0	6.4	0	0.1		3.7	3.7	0
REF. NO.	QR6006			QR6010			QR6013			QR6014			QR6015			QR6017		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	3.7	3.7	3.3	3.5	3.5	0	0	0.2	0	0	4.7	0	4.7	0.4	4.7	4.8	4.1	4.7
REC/PLAY	3.7	3.7	3.3	3.5	3.5	0	0	0	0	0	0	0	4.7	4.7	4.1	4.7	4.1	4.7
F.F.	3.7	3.7	3.3	3.5	3.5	0	0	9.0	0	0	0	11.0	4.7	0.4	4.7	4.7	4.1	4.7
REF. NO.	QR6018			QR6019														
MODE	E	C	B	E	C	B												
STOP	0	4.7	0	4.6	3.2	3.7												
REC/PLAY	0	4.7	0	4.6	3.2	3.7												
F.F.	0	4.7	0	4.6	3.2	3.7												

3-23. SYSTEM CONTROL & SERVO SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP


TO LUMI. & CHRO.
5P SCK
S VHS Ⓛ
5PS DATA
HASW
SCR Ⓗ
FMDREC
S DET Ⓗ
LINE Ⓗ
Y IN
VD REC Ⓗ
SIO
CAMTEST
CAMCLOCK
D6013 MA728
C6025 56P
TL6011
TO VITC
VDREC Ⓗ
NOREG
COMPON. Ⓗ
GND
TO LINER A
A MUTE Ⓗ
AEE Ⓗ
AF ADE Ⓗ
STAPE Ⓗ
TO SUB SYSTEM CTL
S·DATA
DISPSCK
VTRVD
SREG 3.5V
DISP OFF
SYSVSYNC
SYNC DET
VTR Ⓗ
S/S Ⓛ
3V
FIX OSD
IC6005 TC4S66F
TL6004
R6052 22K
R6051 47K
IC6006 LM393DB
(5P CLK AMP)
(BATTERY REMAIN DET)
R6075 5600
QR6019 UN9215 (P·ONⒽ:ON)
D6012 MA132K
IC6011 TC7S08F (CLOCK MIX)
REG 3.8V
C6020 1
C6008 16V10
TL6001
R6054 330K
R6053 39K
SYS REG 5V
D6002 MA132K
QR6017 UN9111 (LOADING SPEED·UP:ON)
QR6005 UN9210 (CAM TESTⒽ:ON)
D6009 MA728
IC6004 M54543AFP (ROADING MOTOR DRIVE)
VCC'1 VCC1 VCC2 VCC'2
OUT2 IN1 GND IN2 OUT1
D6010 MA736
D6011 MA736
C6011 0.1
C6014 2.2
C6012 0.1
C6013 0.1
C6015 0.1
QR6018 UN9213 (LOADING SPEED·UP Ⓗ:ON)
R6011 47K
R6005 47K
R6004 47K
R6003 47K
R6001 47K
R6012 1K
R6013 1K
R6014 1K
R6016 1K
IC6001-③ FF/REW 4Vp-p (10msec./div.)
IC6001-⑪ 3.8Vp-p (10msec./div.)
PON Ⓗ
CAM P Ⓗ
LOAD Ⓛ
UNLOAD Ⓛ
FM MUTE Ⓗ
A MUT Ⓗ
S-VHS Ⓛ
A-EE Ⓗ
V-EE Ⓗ
PB Ⓛ
VDD
SNS LED ON Ⓛ
POWER LED ON Ⓛ
SCAN1
SCAN2
SCAN3
SPEED UP Ⓗ
SCAN5
CAM SIO CTL
SYNC DET
VDD2
H.A.SW
AUDIO FADE Ⓛ
V·DREC Ⓗ
FM·DRECⒽ
RE Ⓗ
NC
CYL.DRIVE CLK
VSS2
RST
EXI
IRQO (PWR SW ON Ⓛ)
S·TABⓁ
VTRⓁ/CAM Ⓗ
S·TAPE Ⓗ
MODE SW
CASSETTE DOWN SW VXA4515 (DOWN:ON)
FLEX CABLE VWJ0492
TO MECH.1 FP6001 VJS2959D016
VEK5549 SENSOR LED LN159-LF
MODE SW VSR0088
LOADING MOTOR VEM0406
CAS DOWN
NOREG GND
SNS LED
POS3
POS2
POS1
COM
LOAD R
LOAD F
S·PHOTO (+)
S·PHOTO (−)
S·TAB
S·TAPE Ⓗ
SAFETY SW VSH0055 (S·TAB ON)
VXA4511 S·PHOTO SENSOR PN166
S DETECT SW VSH0055 (S TAPE OFF)
FLEX CABLE VWJ0493
TO MECH.2 FP6002 VJS2959D006
TREEL OUT (−)
TREEL IN
TREEL OUT (+)
TPHOTO (−)
TPHOTO (+)
VXA4530 REEL SENSOR ON2170·LM
VXA4514 T·PHOTO SENSOR PN166
TO DEW SENSOR P6001 VJP3125D002
DEW
DEW GND
DEW SENSOR
TESTMODE (NOT USED)
EJECT
AUTO REC
AUTO PLAY
AUTO REW
AUTO TAPE
SYS REG 3.5V
TRFIX/OSD Ⓗ
H/N
YIN
TO HI-FI AUDIO
FM MUTE Ⓗ
R6031 47K
R6064 47K
R6055 680
R6032 6800
R6065 47K
R6047 390K
IC6008 TC7W00F (MODE DET.)
IC6009 TC7W00F (MODE DET.)
R6083 47K
R6085 47K
R6084 47K
R6002 47K
R6009 47K
R6008 47K
QR6006 FN3L4Z (S/S Ⓛ:ON)
IC6012 LM393DB (SERIAL DATA AMP)
R6069 10K
R6021 47K
R6033 47K
R6039 12 (1/4W)
Q6001 2SD2216 (SENSOR LED DRIVE)
R6038 22K
QR6001 UN9112 (SENSOR LED ON Ⓛ:ON)
TL6202
R6251 10K
CL6211
CL6213
CL6212
C6023 0.1
R6050 1K
R6061 1K
R6062 1K
R6058 47K
R6017 1K
R6018 1K
R6019 1K
R6020 1K
R6209 47K
IC6001-⑲ 3Vp-p (20μsec./div.)
IC6001-㊵ 2.2Vp-p (20μsec./div.)
S·DET Ⓗ
KEY1
KEY2
KEY3
KEY4
OSC (MAIN) 12MHz
VSS
X1 (SUB) 32KHz
X0 (SUB) 32KHz
GAIN CTL
S.C.R Ⓗ
C6001 10P
C6002 10P
C6003 33P
C6004 33P
C6216 0.1
X6001 VSX0461
X6002 VSX0439
REG 3.5V
SYS REG 5V
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

MODE SW

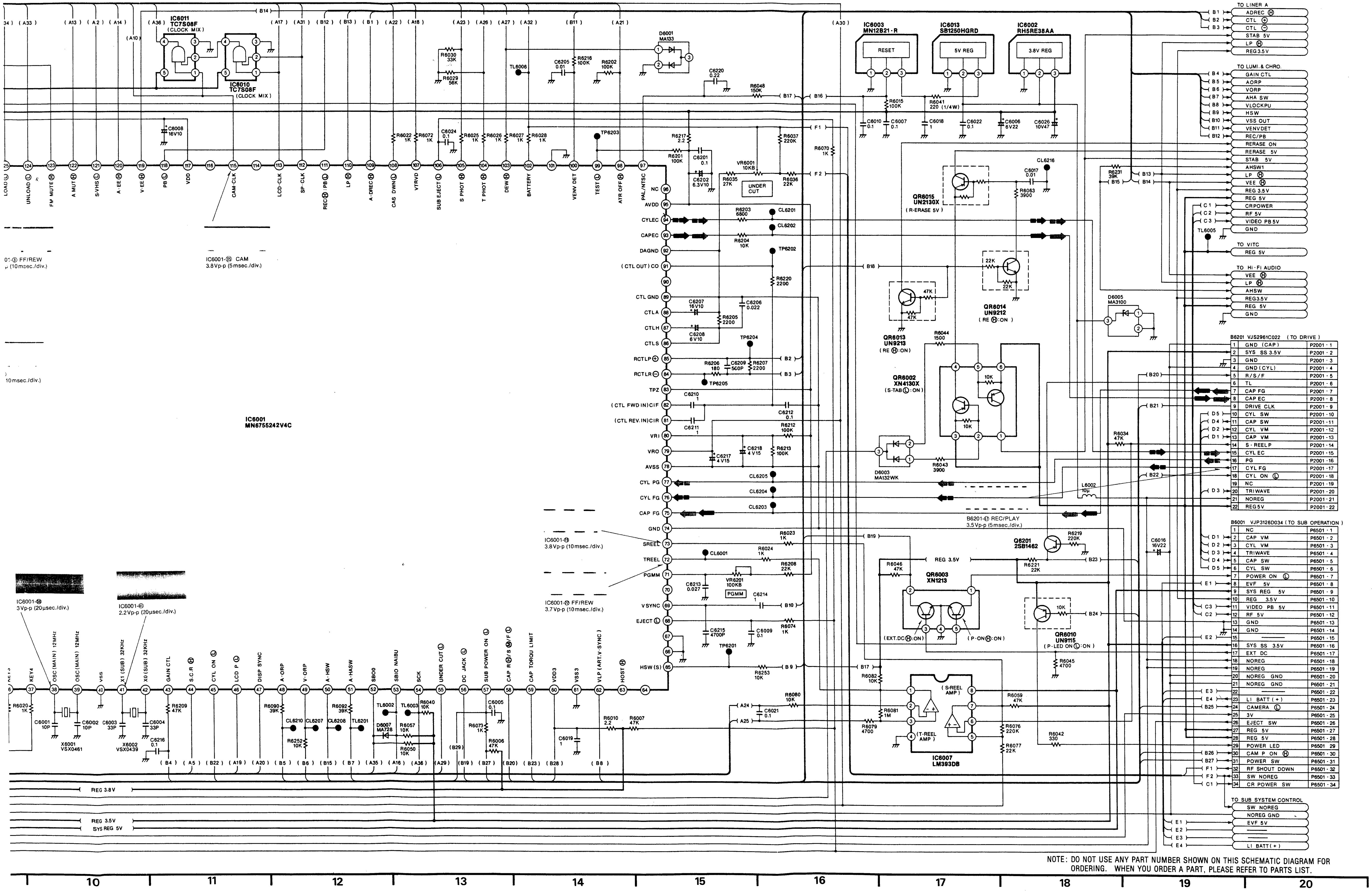
MODE	REW	PLAY	REC	FF	STOP	PAUSE
FP6001-6 (POS 1)	L	L	L	L	L	L
FP6001-5 (POS 2)	L	L	L	L	H	L
FP6001-4 (POS 3)	H	H	H	H	L	H
FP6001-7 (COM)	H	H	H	H	H	H

OOP

.OOP

◀■ CYLINDER SERVO SPEED LOOP

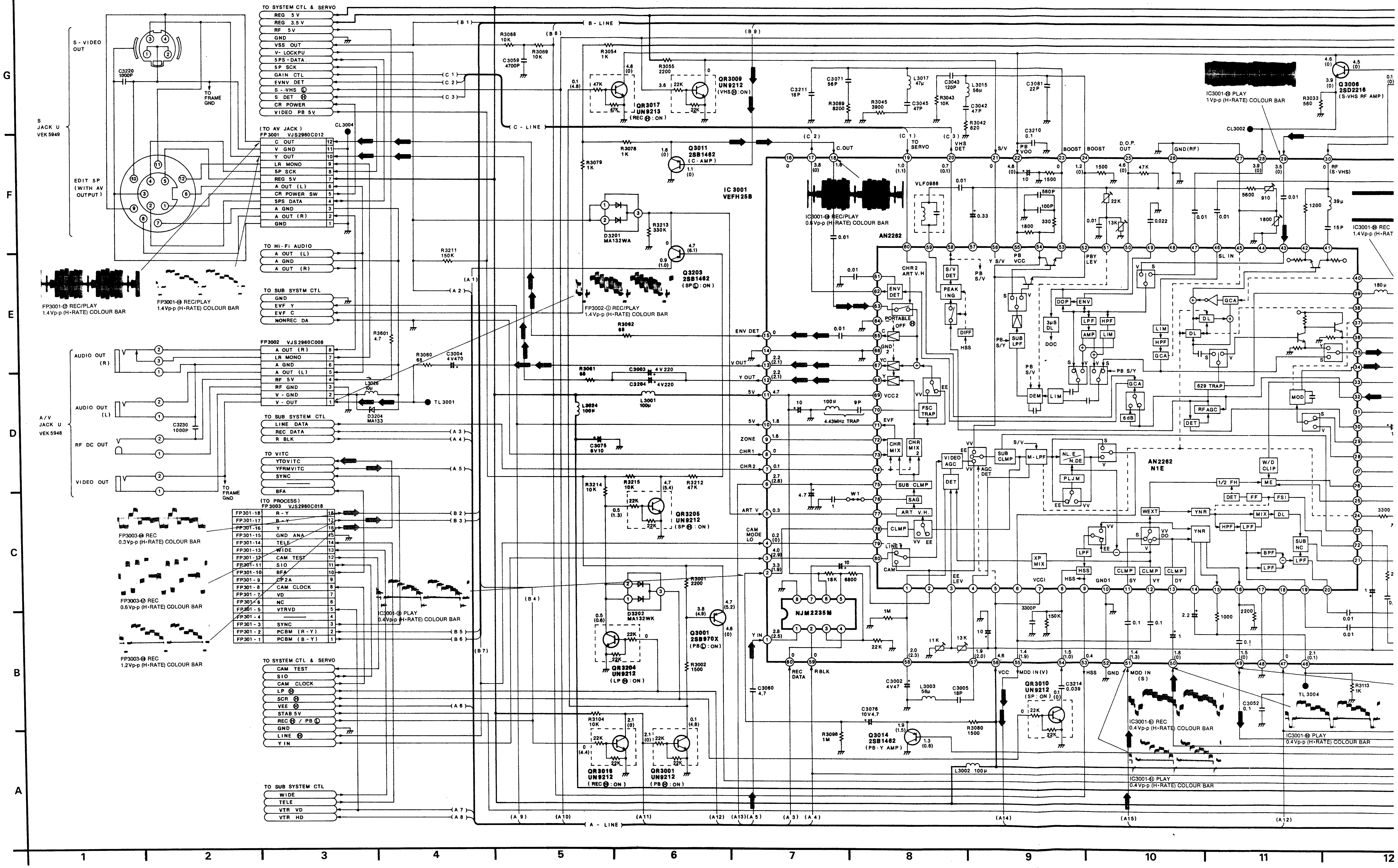
◀■ CYLINDER SERVO PHASE LOOP


IC6011 TC7S08F (CLOCK MIX)
IC6010 TC7S08F (CLOCK MIX)
D6001 MA133
IC6001 MN6755242V4C
IC6003 MN12B21-R RESET
IC6013 SB1250HGRD 5V REG
IC6002 RH5RE38AA 3.8V REG
QR6015 UN2130X (R-ERASE 5V)
QR6014 UN9212 (RE Ⓗ:ON)
QR6013 UN9213 (RE Ⓗ:ON)
QR6002 XN4130X (S-TAB Ⓛ:ON)
D6003 MA132WK
D6005 MA3100
Q6201 2SB1462
QR6003 XN1213 (EXT.DC Ⓗ:ON) (P-ON Ⓗ:ON)
QR6010 UN9115 (P-LED ON Ⓛ:ON)
IC6007 LM393DB (S-REEL AMP) (T-REEL AMP)
TO LINER A
TO LUMI. & CHRO.
TO VITC
TO HI-FI AUDIO
B6201 VJS2961C022 (TO DRIVE)
B6001 VJP3126D034 (TO SUB OPERATION)
TO SUB SYSTEM CONTROL
IC6001-⑮ FF/REW
IC6001-⑮ CAM 3.8Vp-p (5msec./div.)
IC6001-㊳ 3Vp-p (20μsec./div.)
IC6001-㊶ 2.2Vp-p (20μsec./div.)
IC6001-⑬ 3.8Vp-p (10msec./div.)
IC6001-⑪ FF/REW 3.7Vp-p (10msec./div.)
B6201-⑰ REC/PLAY 3.5Vp-p (5msec./div.)
REG 3.8V
REG 3.5V
SYS REG 5V
10
11
12
13
14
15
16
17
18
19
20

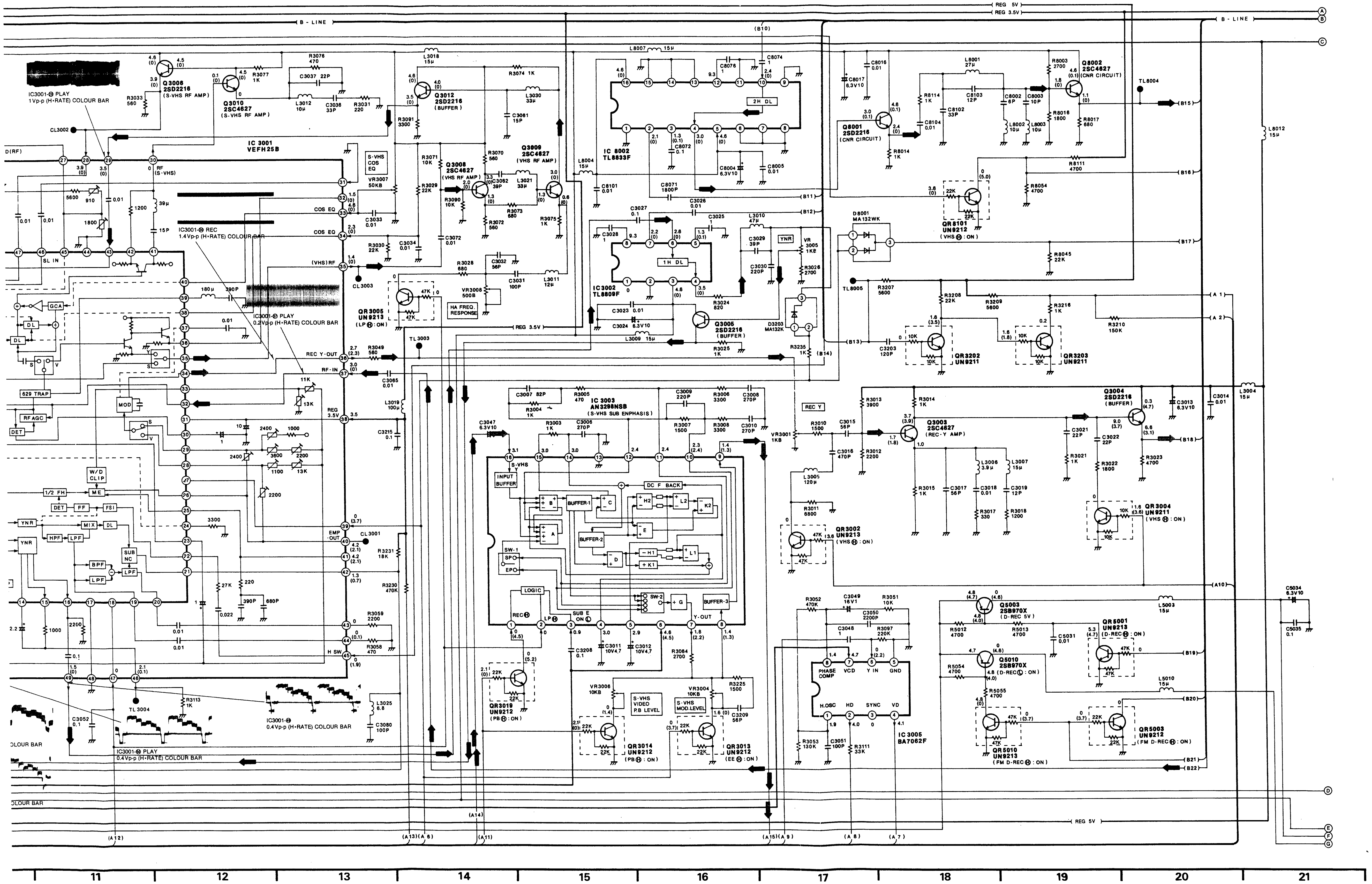
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-24. LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE


TO SYSTEM CTL & SERVO
REG 5V
REG 3.5V
RF 5V
GND
VSS OUT
V- LOCKPU
5PS - DATA
5P SCK
GAIN CTL
EVNV DET
S - VHS
S DET
CR POWER
VIDEO PB 5V
S-VIDEO OUT
S JACK U VEK5949
EDIT 5P (WITH AV OUTPUT)
(TO AV JACK)
FP3001 VJS2960C012
C OUT
V GND
Y OUT
LR MONO
5P SCK
REG 5V
A OUT (L)
CR POWER SW
5PS DATA
A GND
A OUT (R)
TO Hi-Fi AUDIO
TO SUB SYSTM CTL
EVF Y
EVF C
NONREC DA
FP3002 VJS2960C008
A/V JACK U VEK5948
AUDIO OUT (R)
AUDIO OUT (L)
RF DC OUT
VIDEO OUT
LINE DATA
REC DATA
R BLK
TO VITC
YTOVITC
YFRMVITC
SYNC
BFA
(TO PROCESS)
FP3003 VJS2960C018
CAM TEST
SIO
CAM CLOCK
LP
SCR
VEE
STAB 5V
REC / PB
LINE
Y IN
WIDE
TELE
VTR VD
VTR HD
FP3001-⑫ REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3001-⑩ REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3002-① REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3003-⑱ REC 0.3Vp-p (H-RATE) COLOUR BAR
FP3003-⑰ REC 0.6Vp-p (H-RATE) COLOUR BAR
FP3003-⑯ REC 1.2Vp-p (H-RATE) COLOUR BAR
IC3001-② PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-⑱ REC/PLAY 0.6Vp-p (H-RATE) COLOUR BAR
IC3001-㉙ PLAY 1Vp-p (H-RATE) COLOUR BAR
IC3001-㊸ REC 1.4Vp-p (H-RATE)
IC3001-(51) REC 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-(51) PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-㊽ PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC 3001 VEFH25B
AN2262
AN2262 N1E
NJM2235M
QR3009 UN9212 (VHS: ON)
QR3017 UN9213 (REC: ON)
Q3011 2SB1462 (C-AMP)
Q3203 2SB1462 (SP: ON)
QR3205 UN9212 (SP: ON)
Q3001 2SB970X (PB: ON)
QR3204 UN9212 (LP: ON)
QR3016 UN9212 (REC: ON)
QR3001 UN9212 (PB: ON)
Q3014 2SB1462 (PB-Y AMP)
QR3010 UN9212 (SP: ON)
Q3006 2SD2216 (S-VHS RF AMP)
D3201 MA132WA
D3202 MA132WK
D3204 MA133
TL 3001
TL 3004
CL3004
CL3002
B - LINE
C - LINE
A - LINE
4.43MHz TRAP
1
2
3
4
5
6
7
8
9
10
11
12
G
F
E
D
C
B
A

MAIN SIGNAL PATH IN PLAYBACK MODE


[redacted]

IC3001-⊕ PLAY
1Vp-p (H-RATE) COLOUR BAR
B-LINE
REG 5V
REG 3.5V
Q3006 2SD2216 (S-VHS RF AMP)
Q3010 2SC4627 (S-VHS RF AMP)
Q3012 2SD2216 (BUFFER)
Q3008 2SC4627 (VHS RF AMP)
Q3009 2SC4627 (VHS RF AMP)
IC 3001 VEFH25B
S-VHS COS EQ
VR3007 50KB
COS EQ
(VHS)RF
CL3002
CL3003
CL3001
IC3001-⊕ REC
1.4Vp-p (H-RATE) COLOUR BAR
IC3001-⊕ PLAY
0.2Vp-p (H-RATE) COLOUR BAR
QR3005 UN9213 (LP⊕ : ON)
HA FREQ. RESPONSE
VR3008 500B
TL3003
REC Y-OUT
RF-IN
REG 3.5V
EMP OUT
H SW
GCA
DL
629 TRAP
MOD
RF AGC
DET
W/D CLIP
1/2 FH
ME
FF
FSI
YNR
MIX
HPF
LPF
BPF
SUB NC
TL3004
IC3001-⊕
0.4Vp-p (H-RATE) COLOUR BAR
IC3001-⊕ PLAY
0.4Vp-p (H-RATE) COLOUR BAR
L8007
IC 8002 TL8833F
2H DL
1H DL
IC3002 TL8809F
Q3005 2SD2216 (BUFFER)
D3203 MA132K
YNR
VR3005 1KB
IC 3003 AN3298NSB (S-VHS SUB ENPHASIS)
INPUT BUFFER
S-VHS
BUFFER-1
BUFFER-2
BUFFER-3
DC F BACK
SW-1
SW-2
SP
EP
LOGIC
REC⊕
LP⊕
SUB E ON
Y-OUT
QR3019 UN9212 (PB⊕ : ON)
QR3014 UN9212 (PB⊕ : ON)
QR3013 UN9212 (EE⊕ : ON)
VR3006 10KB
S-VHS VIDEO P.B LEVEL
VR3004 10KB
S-VHS MOD.LEVEL
Q8001 2SD2216 (CNR CIRCUIT)
Q8002 2SC4627 (CNR CIRCUIT)
TL8004
QR8101 UN9212 (VHS⊕ : ON)
D8001 MA132WK
TL8005
QR3202 UN9211
QR3203 UN9211
REC Y
VR3001 1KB
Q3003 2SC4627 (REC-Y AMP)
Q3004 2SD2216 (BUFFER)
QR3002 UN9213 (VHS⊕ : ON)
QR3004 UN9211 (VHS⊕ : ON)
IC 3005 BA7062F
PHASE COMP
VCD
Y IN
GND
H.OSC
HD
SYNC
VD
Q5003 2SB970X (D-REC 5V)
Q5010 2SB970X (D-REC⊕ : ON)
QR5001 UN9213 (D-REC⊕ : ON)
QR5010 UN9213 (FM D-REC⊕ : ON)
QR5003 UN9212 (FM D-REC⊕ : ON)
11
12
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14
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19
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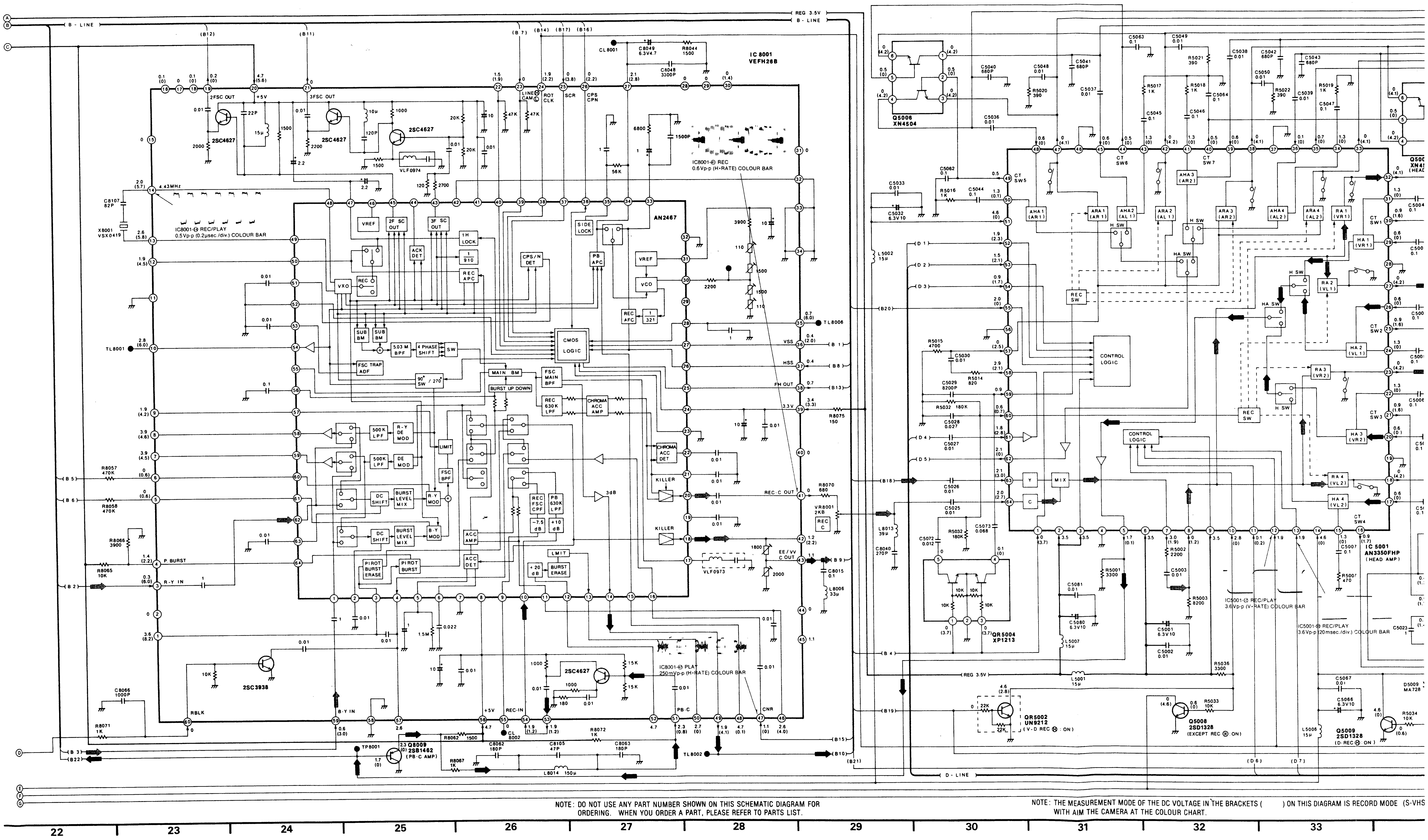
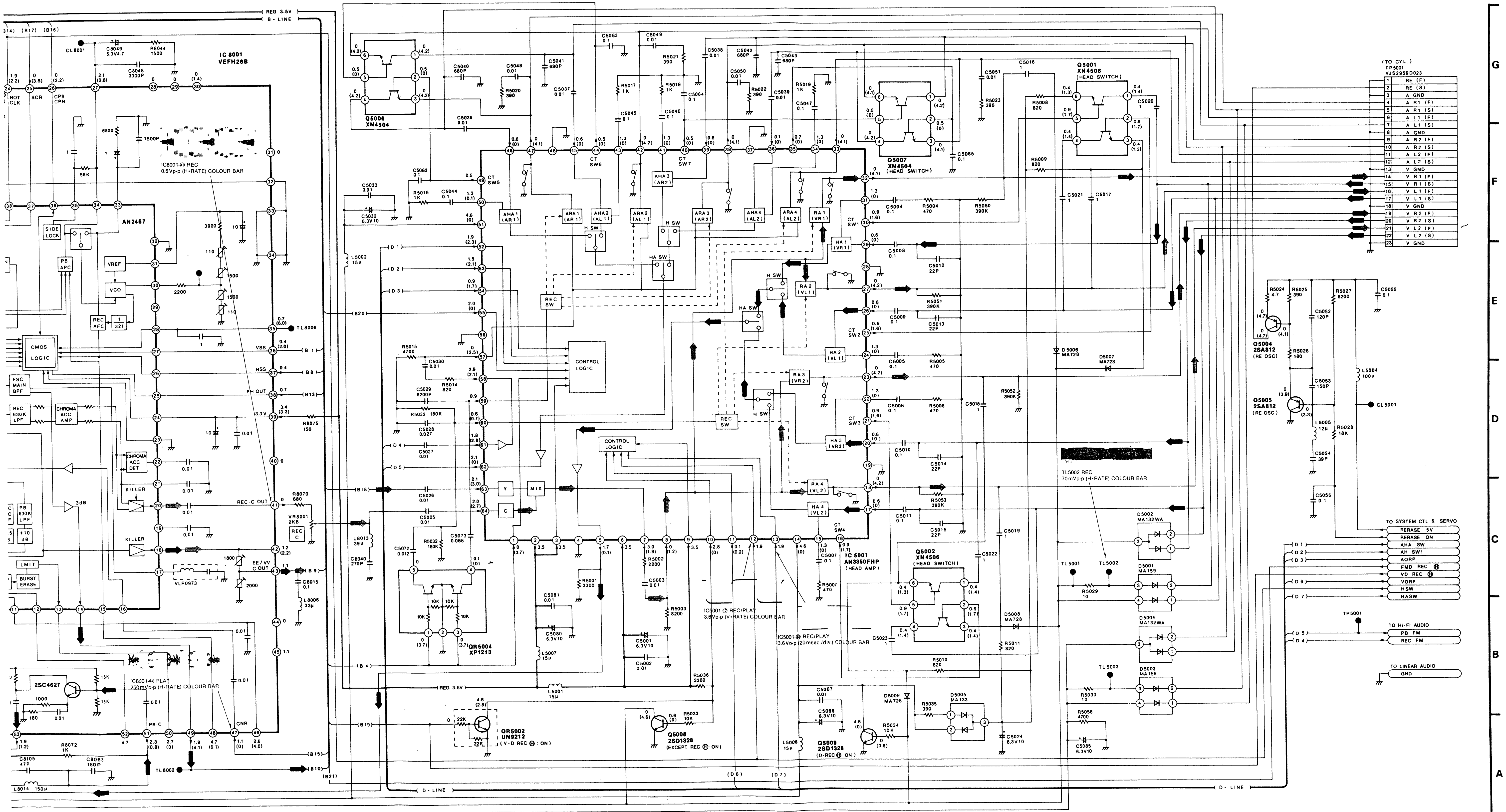
21


IC 8001
VEFH268
AN2467
IC 5001
AN3350FHP
(HEAD AMP)
Q5006
XN4504
2SC4627
2SC3938
Q8009
2SB1462
(PB-C AMP)
QR5004
XP1213
QR5002
UN9212
(V-D REC Ⓢ : ON)
Q5008
2SD1328
(EXCEPT REC Ⓢ : ON)
Q5009
2SD1328
(D-REC Ⓢ : ON)
X8001
VSX0419
VLF0974
VLF0973
CMOS LOGIC
CONTROL LOGIC
REG 3.5V
B - LINE
D - LINE
IC8001-⑭ REC/PLAY
0.5Vp-p (0.2μsec./div.) COLOUR BAR
IC8001-㊶ REC
0.6Vp-p (H-RATE) COLOUR BAR
IC8001-㊼ PLAY
250mVp-p (H-RATE) COLOUR BAR
IC5001-⑫ REC/PLAY
3.6Vp-p (V-RATE) COLOUR BAR
IC5001-⑬ REC/PLAY
3.6Vp-p (20msec./div.) COLOUR BAR
22
23
24
25
26
27
28
29
30
31
32
33

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE (S-VHS WITH AIM THE CAMERA AT THE COLOUR CHART.


REG 3.5V
B - LINE
IC 8001
VEFH26B
AN2467
CL8001
IC8001-㉛ REC
0.6Vp-p (H-RATE) COLOUR BAR
IC8001-㉛ PLAY
250mVp-p (H-RATE) COLOUR BAR
SIDE LOCK
PB APC
VREF
VCO
REC AFC
CMOS LOGIC
FSC MAIN BPF
REC 630K LPF
CHROMA ACC AMP
CHROMA ACC DET
KILLER
PB 630K LPF
LMIT
BURST ERASE
VLF0973
2SC4627
TL8006
TL8002
REC·C OUT
EE/VV C OUT
VR8001 2KB
CNR
PB·C
Q5006 XN4504
Q5007 XN4504 (HEAD SWITCH)
Q5001 XN4506 (HEAD SWITCH)
Q5002 XN4506 (HEAD SWITCH)
IC 5001 AN3350FHP (HEAD AMP)
QR5004 XP1213
QR5002 UN9212 (V-D REC Ⓗ : ON)
Q5008 2SD1328 (EXCEPT REC Ⓗ: ON)
Q5009 2SD1328 (D-REC Ⓗ : ON)
Q5004 2SA812 (RE OSC)
Q5005 2SA812 (RE OSC)
CT SW1
CT SW2
CT SW3
CT SW4
CT SW5
CT SW6
CT SW7
AHA 1 (AR 1)
ARA 1 (AR 1)
AHA 2 (AL 1)
ARA 2 (AL 1)
ARA 3 (AR 2)
AHA 3 (AR 2)
AHA 4 (AL 2)
ARA 4 (AL 2)
RA 1 (VR 1)
HA 1 (VR 1)
RA 2 (VL 1)
HA 2 (VL 1)
RA 3 (VR 2)
HA 3 (VR 2)
RA 4 (VL 2)
HA 4 (VL 2)
H SW
HA SW
REC SW
CONTROL LOGIC
Y
MIX
C
IC5001-㉓ REC/PLAY
3.6Vp-p (V-RATE) COLOUR BAR
IC5001-⑫ REC/PLAY
3.6Vp-p (20msec./div.) COLOUR BAR
TL5002 REC
70mVp-p (H-RATE) COLOUR BAR
D5006 MA728
D5007 MA728
D5008 MA728
D5009 MA728
D5005 MA133
D5002 MA132WA
D5001 MA159
D5004 MA132WA
D5003 MA159
TL5001
TL5002
TL5003
TP5001
CL5001
L5004 100µ
(TO CYL)
FP5001
VJS2959D023
1 RE (F)
2 RE (S)
3 A GND
4 A R1 (F)
5 A R1 (S)
6 A L1 (F)
7 A L1 (S)
8 A GND
9 A R2 (F)
10 A R2 (S)
11 A L2 (F)
12 A L2 (S)
13 V GND
14 V R1 (F)
15 V R1 (S)
16 V L1 (F)
17 V L1 (S)
18 V GND
19 V R2 (F)
20 V R2 (S)
21 V L2 (F)
22 V L2 (S)
23 V GND
TO SYSTEM CTL & SERVO
RERASE 5V
RERASE ON
AHA SW
AH SW1
AORP
FMD REC Ⓗ
VD REC Ⓗ
VORP
HSW
HASW
TO Hi-Fi AUDIO
PB FM
REC FM
TO LINEAR AUDIO
GND
D - LINE
G
F
E
D
C
B
A

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE (S-VHS; SP MODE). WITH AIM THE CAMERA AT THE COLOUR CHART.

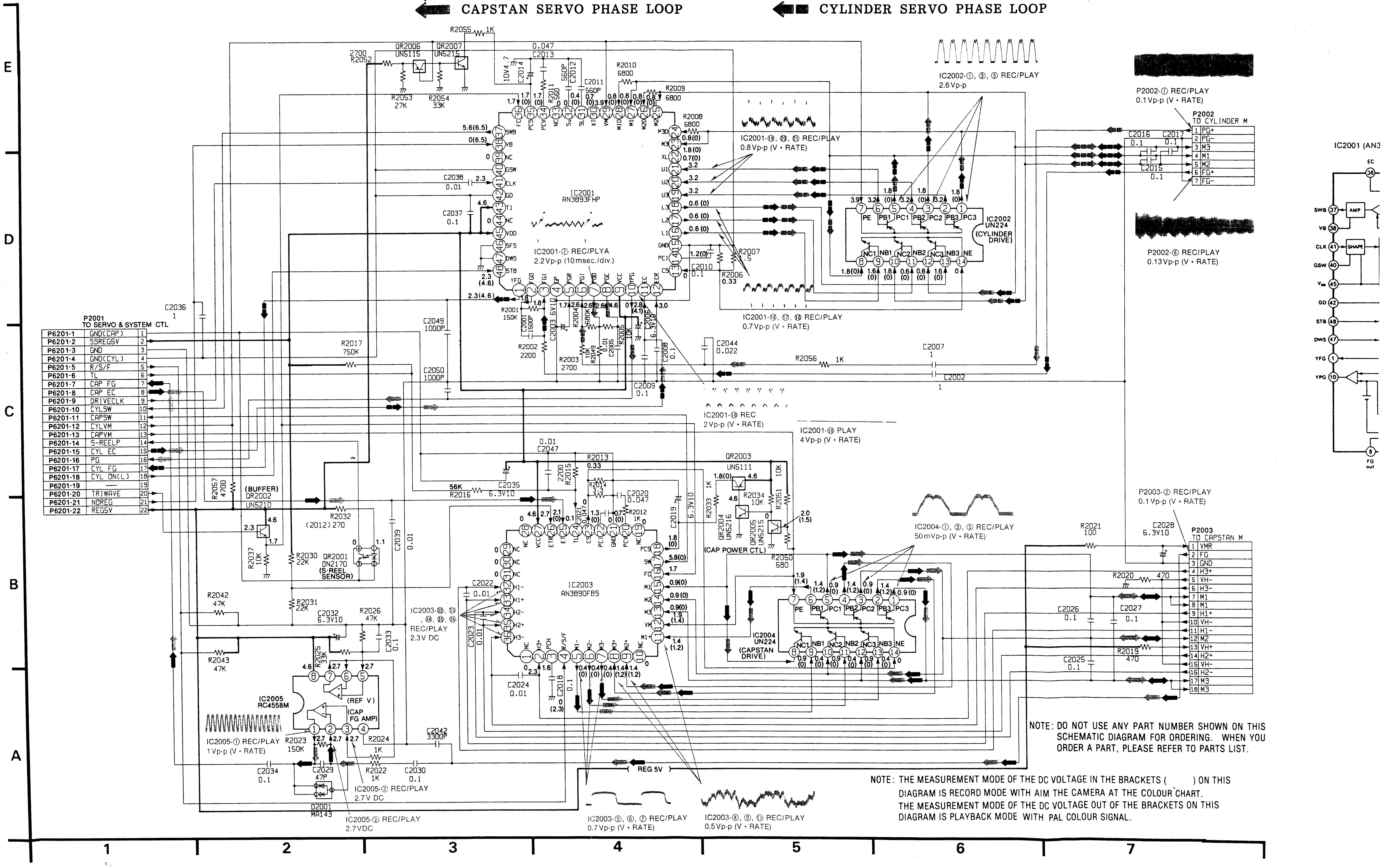
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

27 28 29 30 31 32 33 34 35 36 37 38

Next Page:
DRIVE Section

3-25. DRIVE SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP

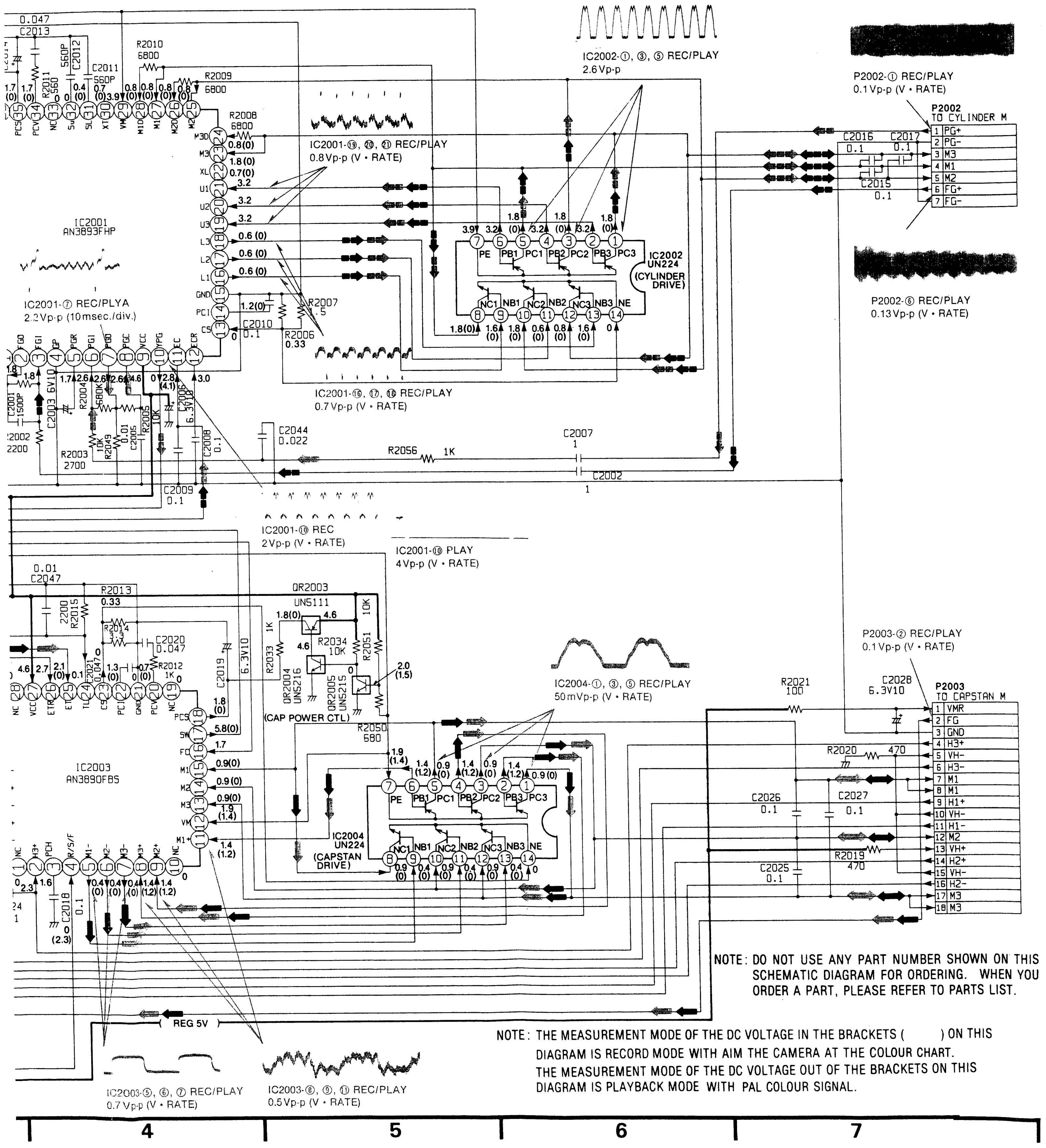

E
D
C
B
A
1
2
3
4
5
6
7
P2001
TO SERVO & SYSTEM CTL
P6201-1 GND(CAP) 1
P6201-2 SSREG5V 2
P6201-3 GND 3
P6201-4 GND(CYL) 4
P6201-5 R/S/F 5
P6201-6 TL 6
P6201-7 CAP FG 7
P6201-8 CAP EC 8
P6201-9 DRIVECLK 9
P6201-10 CYLSW 10
P6201-11 CAPSW 11
P6201-12 CYLVM 12
P6201-13 CAPVM 13
P6201-14 S-REELP 14
P6201-15 CYL EC 15
P6201-16 PG 16
P6201-17 CYL FG 17
P6201-18 CYL ON(L) 18
P6201-19 —— 19
P6201-20 TRIWAVE 20
P6201-21 NOREG 21
P6201-22 REG5V 22
IC2001
AN3893FHP
IC2001-⑦ REC/PLYA
2.2Vp-p (10msec./div.)
IC2001-⑲, ⑳, ㉑ REC/PLAY
0.8Vp-p (V • RATE)
IC2001-⑯, ⑰, ⑱ REC/PLAY
0.7Vp-p (V • RATE)
IC2001-⑩ REC
2Vp-p (V • RATE)
IC2001-⑩ PLAY
4Vp-p (V • RATE)
IC2002
UN224
(CYLINDER DRIVE)
IC2002-①, ③, ⑤ REC/PLAY
2.6Vp-p
P2002-① REC/PLAY
0.1Vp-p (V • RATE)
P2002-⑥ REC/PLAY
0.13Vp-p (V • RATE)
P2002
TO CYLINDER M
1 PG+
2 PG-
3 M3
4 M1
5 M2
6 FG+
7 FG-
IC2001 (AN3
IC2003
AN3890FBS
IC2003-㉜, ㉝, ㉞, ㉟, ㊱ REC/PLAY
2.3V DC
IC2003-⑤, ⑥, ⑦ REC/PLAY
0.7Vp-p (V • RATE)
IC2003-⑧, ⑨, ⑩ REC/PLAY
0.5Vp-p (V • RATE)
IC2004
UN224
(CAPSTAN DRIVE)
IC2004-①, ③, ⑤ REC/PLAY
50mVp-p (V • RATE)
P2003-② REC/PLAY
0.1Vp-p (V • RATE)
P2003
TO CAPSTAN M
1 VMR
2 FG
3 GND
4 H3+
5 VH-
6 H3-
7 M1
8 M1
9 H1+
10 VH-
11 H1-
12 M2
13 VH+
14 H2+
15 VH-
16 H2-
17 M3
18 M3
IC2005
RC4558M
(REF V)
(CAP FG AMP)
IC2005-① REC/PLAY
1Vp-p (V • RATE)
IC2005-③ REC/PLAY
2.7V DC
IC2005-② REC/PLAY
2.7VDC
(BUFFER)
QR2002
UN5210
QR2001
ON2170
(S-REEL SENSOR)
QR2003
UN5111
QR2004
UN5216
QR2005
UN5215
(CAP POWER CTL)
QR2006
UN5115
QR2007
UN5215
D2001
MA143
REG 5V

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

N SERVO SPEED LOOP
N SERVO PHASE LOOP

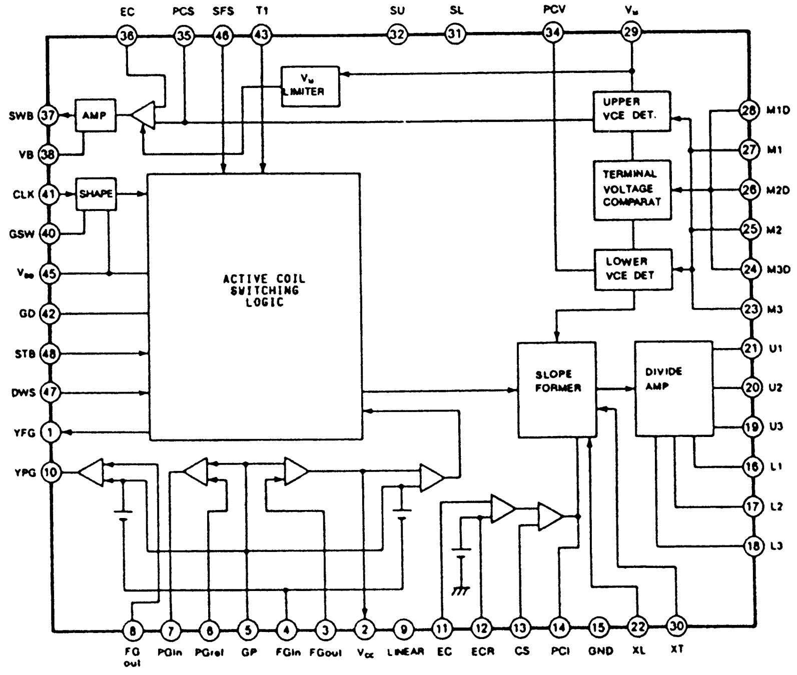
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP


IC2001
AN3893FHP
IC2002
UN224
(CYLINDER DRIVE)
IC2003
AN3890FBS
IC2004
UN224
(CAPSTAN DRIVE)
QR2003
UN5111
QR2004 UN5216
QR2005 UN5215
(CAP POWER CTL)
P2002
TO CYLINDER M
1 PG+
2 PG-
3 M3
4 M1
5 M2
6 FG+
7 FG-
P2003
TO CAPSTAN M
1 VMR
2 FG
3 GND
4 H3+
5 VH-
6 H3-
7 M1
8 M1
9 H1+
10 VH-
11 H1-
12 M2
13 VH+
14 H2+
15 VH-
16 H2-
17 M3
18 M3
IC2002-①, ③, ⑤ REC/PLAY
2.6Vp-p
P2002-① REC/PLAY
0.1Vp-p (V • RATE)
P2002-⑥ REC/PLAY
0.13Vp-p (V • RATE)
IC2001-⑲, ⑳, ㉑ REC/PLAY
0.8Vp-p (V • RATE)
IC2001-⑦ REC/PLYA
2.2Vp-p (10msec./div.)
IC2001-⑯, ⑰, ⑱ REC/PLAY
0.7Vp-p (V • RATE)
IC2001-⑩ REC
2Vp-p (V • RATE)
IC2001-⑩ PLAY
4Vp-p (V • RATE)
IC2004-①, ③, ⑤ REC/PLAY
50mVp-p (V • RATE)
P2003-② REC/PLAY
0.1Vp-p (V • RATE)
IC2003-⑤, ⑥, ⑦ REC/PLAY
0.7Vp-p (V • RATE)
IC2003-⑧, ⑨, ⑪ REC/PLAY
0.5Vp-p (V • RATE)
REG 5V
4
5
6
7

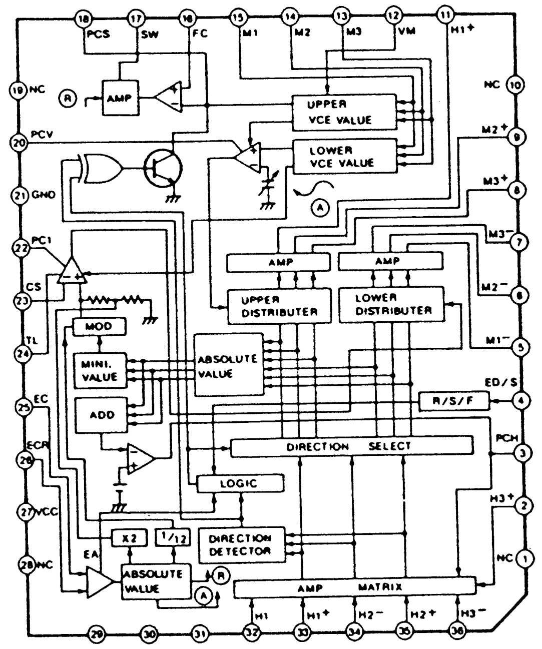
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

IC2001 (AN3893FHP)


EC
PCS
SFS
T1
SU
SL
PCV
Vm
SWB
VB
CLK
GSW
Vm
GD
STB
DWS
YFG
YPG
AMP
SHAPE
Vm LIMITER
ACTIVE COIL SWITCHING LOGIC
UPPER VCE DET.
TERMINAL VOLTAGE COMPARAT
LOWER VCE DET
SLOPE FORMER
DIVIDE AMP
M1D
M1
M2D
M2
M3D
M3
U1
U2
U3
L1
L2
L3
FG out
PGin
PGref
GP
FGin
FGout
Vcc
LINEAR
EC
ECR
CS
PCI
GND
XL
XT

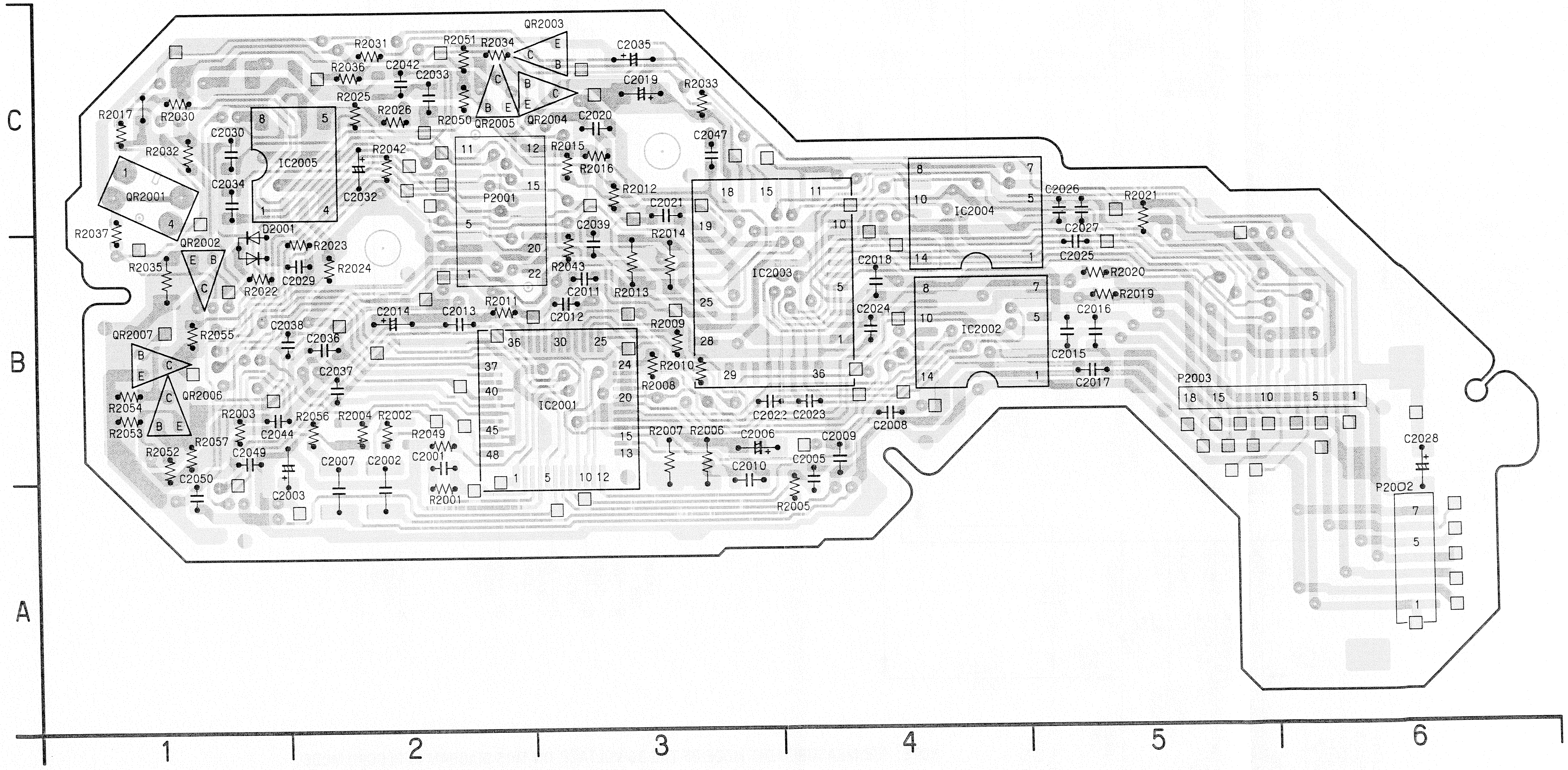
IC2003 (AN3890FBS)


PCS
SW
FC
M1
M2
M3
VM
H1+
NC
PCV
GND
PCI
CS
TL
EC
ECR
VCC
NC
AMP
UPPER VCE VALUE
LOWER VCE VALUE
AMP
AMP
UPPER DISTRIBUTER
LOWER DISTRIBUTER
MOD
MINI. VALUE
ABSOLUTE VALUE
ADD
R/S/F
DIRECTION SELECT
LOGIC
X2
1/12
DIRECTION DETECTOR
ABSOLUTE VALUE
AMP MATRIX
EA
M2+
M3+
M3-
M2-
M1-
ED/S
PCH
H3+
NC
H1+
H1-
H2-
H2+
H3-

DRIVE C.B.A.	
Transistor & Resistor	
QR2001	C-1
QR2002	B-1
QR2003	C-3
QR2004	C-3
QR2005	C-2
QR2006	B-1
QR2007	B-1
Integrated Circuit	
IC2001	B-3
IC2002	B-4
IC2003	B-3
IC2004	C-4
IC2005	C-2
Connector	
P2001	C-2
P2002	A-6
P2003	B-5

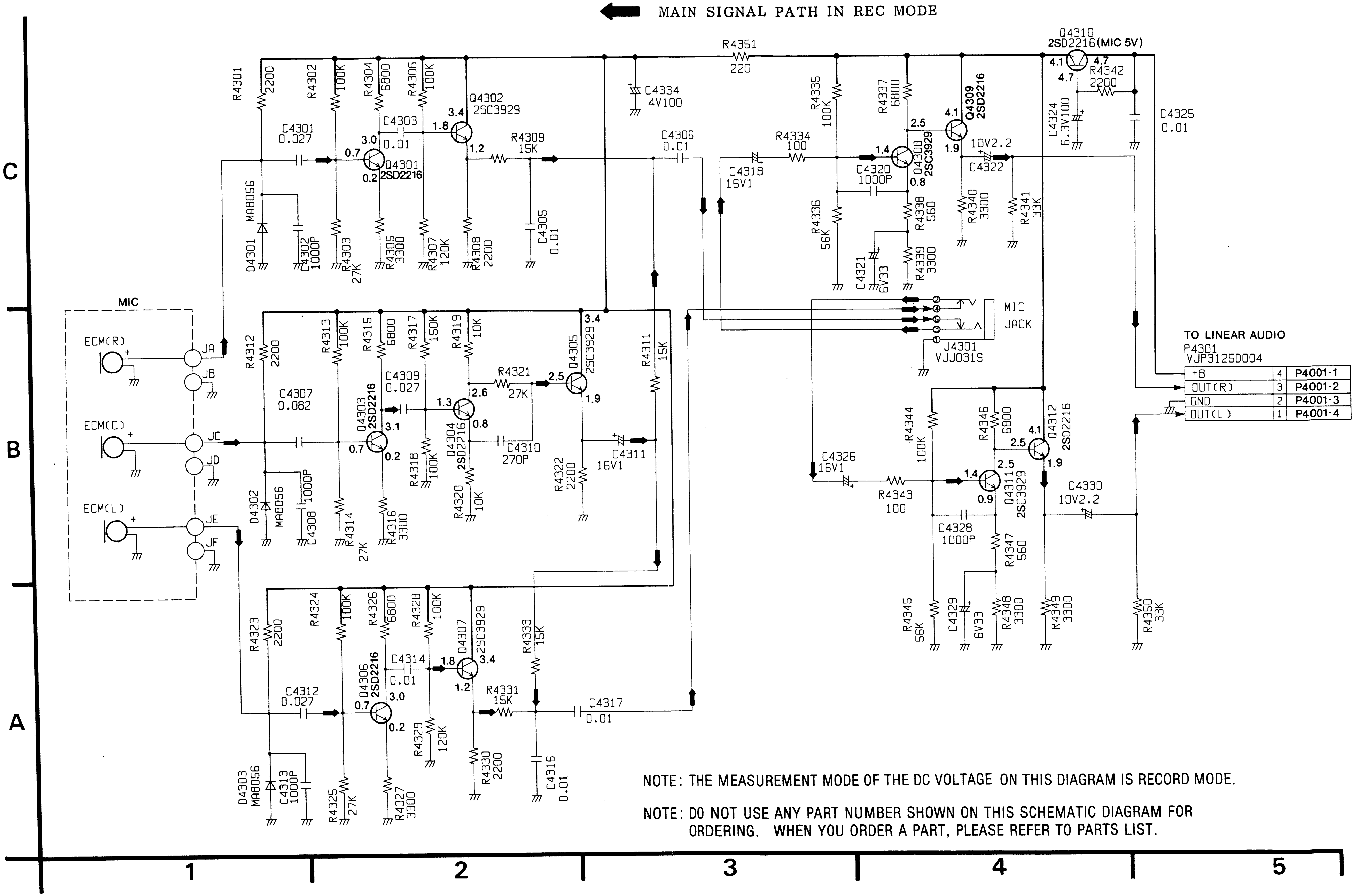
ADDRESS INFORMATION

3-26. DRIVE C.B.A. (VEP02379B)



C
B
A
1
2
3
4
5
6
QR2003
R2031
R2051
R2034
C2035
R2036
C2042
C2033
R2025
R2026
R2050
QR2005
QR2004
C2019
R2033
C2020
C2047
R2017
R2030
C2030
R2032
IC2005
R2042
R2015
R2016
P2001
C2034
C2032
R2012
C2021
QR2001
R2037
D2001
QR2002
R2023
R2024
R2035
R2022
C2029
C2039
R2014
R2043
C2011
R2013
IC2003
C2018
IC2004
C2026
R2021
C2027
C2025
R2020
R2019
IC2002
C2016
C2015
C2017
C2024
C2014
C2013
R2011
C2012
R2009
R2010
R2008
QR2007
R2055
C2038
C2036
C2037
IC2001
QR2006
R2054
R2053
R2003
C2044
R2056
R2004
R2002
R2049
C2001
R2001
R2057
R2052
C2049
C2050
C2003
C2007
C2002
R2007
R2006
C2006
C2010
C2022
C2023
C2008
C2009
C2005
R2005
P2003
C2028
P2002

3-27. MIC SCHEMATIC DIAGRAM

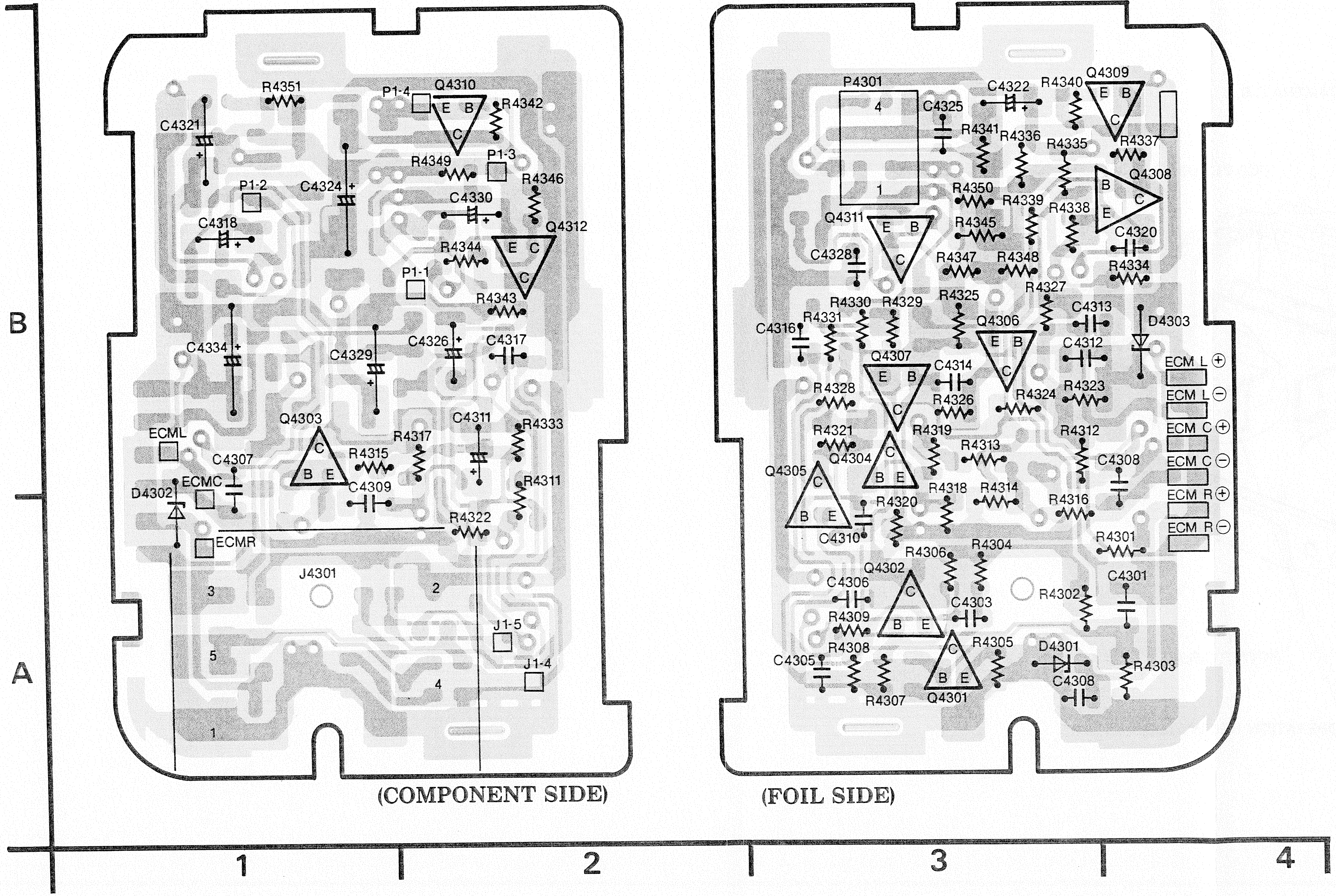

MAIN SIGNAL PATH IN REC MODE
MIC
ECM(R)
ECM(C)
ECM(L)
JA
JB
JC
JD
JE
JF
R4301 2200
R4302 100K
R4303 27K
R4304 6800
R4305 3300
R4306 100K
R4307 120K
R4308 2200
R4309 15K
C4301 0.027
C4302 1000P
C4303 0.01
C4305 0.01
C4306 0.01
D4301 MA8056
Q4301 2SD2216
Q4302 2SC3929
C4334 4V100
R4351 220
R4334 100
R4335 100K
R4336 56K
R4337 6800
R4338 560
R4339 3300
R4340 3300
R4341 33K
C4318 16V1
C4320 1000P
C4321 6V33
C4322 10V2.2
Q4308 2SC3929
Q4309 2SD2216
Q4310 2SD2216(MIC 5V)
R4342 2200
C4324 6.3V100
C4325 0.01
MIC JACK
J4301 VJJ0319
TO LINEAR AUDIO
P4301 VJP3125D004
+B 4 P4001-1
OUT(R) 3 P4001-2
GND 2 P4001-3
OUT(L) 1 P4001-4
R4312 2200
R4313 100K
R4314 27K
R4315 6800
R4316 3300
R4317 150K
R4318 100K
R4319 10K
R4320 10K
R4321 27K
R4322 2200
R4311 15K
C4307 0.082
C4308 1000P
C4309 0.027
C4310 270P
C4311 16V1
D4302 MA8056
Q4303 2SD2216
Q4304 2SD2216
Q4305 2SC3929
C4326 16V1
R4343 100
R4344 100K
R4345 56K
R4346 6800
R4347 560
R4348 3300
R4349 3300
R4350 33K
C4328 1000P
C4329 6V33
C4330 10V2.2
Q4311 2SC3929
Q4312 2SD2216
R4323 2200
R4324 100K
R4325 27K
R4326 6800
R4327 3300
R4328 100K
R4329 120K
R4330 2200
R4331 15K
R4333 15K
C4312 0.027
C4313 1000P
C4314 0.01
C4316 0.01
C4317 0.01
D4303 MA8056
Q4306 2SD2216
Q4307 2SC3929
C
B
A
1
2
3
4
5

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS RECORD MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Back Page:
DRIVE Section

3-28. MIC C.B.A. (VEK5465)


B
A
1
2
3
4
R4351
P1-4
Q4310
E B C
R4342
C4321
R4349
P1-3
P1-2
C4324
R4346
C4330
C4318
Q4312
E C C
R4344
P1-1
R4343
C4334
C4329
C4326
C4317
Q4303
C B E
C4311
R4333
ECML
R4317
R4315
C4307
ECMC
C4309
R4311
D4302
R4322
ECMR
J4301
3
2
5
J1-5
J1-4
4
1
P4301
C4322
R4340
Q4309
C4325
R4341
R4336
R4335
R4337
Q4308
B C E
R4350
R4339
R4338
Q4311
R4345
C4320
C4328
R4347
R4348
R4334
R4327
R4330
R4329
R4325
C4313
R4331
C4316
Q4306
D4303
C4312
Q4307
C4314
ECM L ⊕
ECM L ⊖
R4328
R4326
R4324
R4323
ECM C ⊕
R4321
R4319
R4312
ECM C ⊖
Q4304
R4313
C4308
Q4305
R4318
R4314
ECM R ⊕
R4320
R4316
ECM R ⊖
C4310
R4301
R4306
R4304
Q4302
C4306
R4302
C4301
C4303
R4309
R4305
D4301
R4308
C4305
R4303
R4307
Q4301

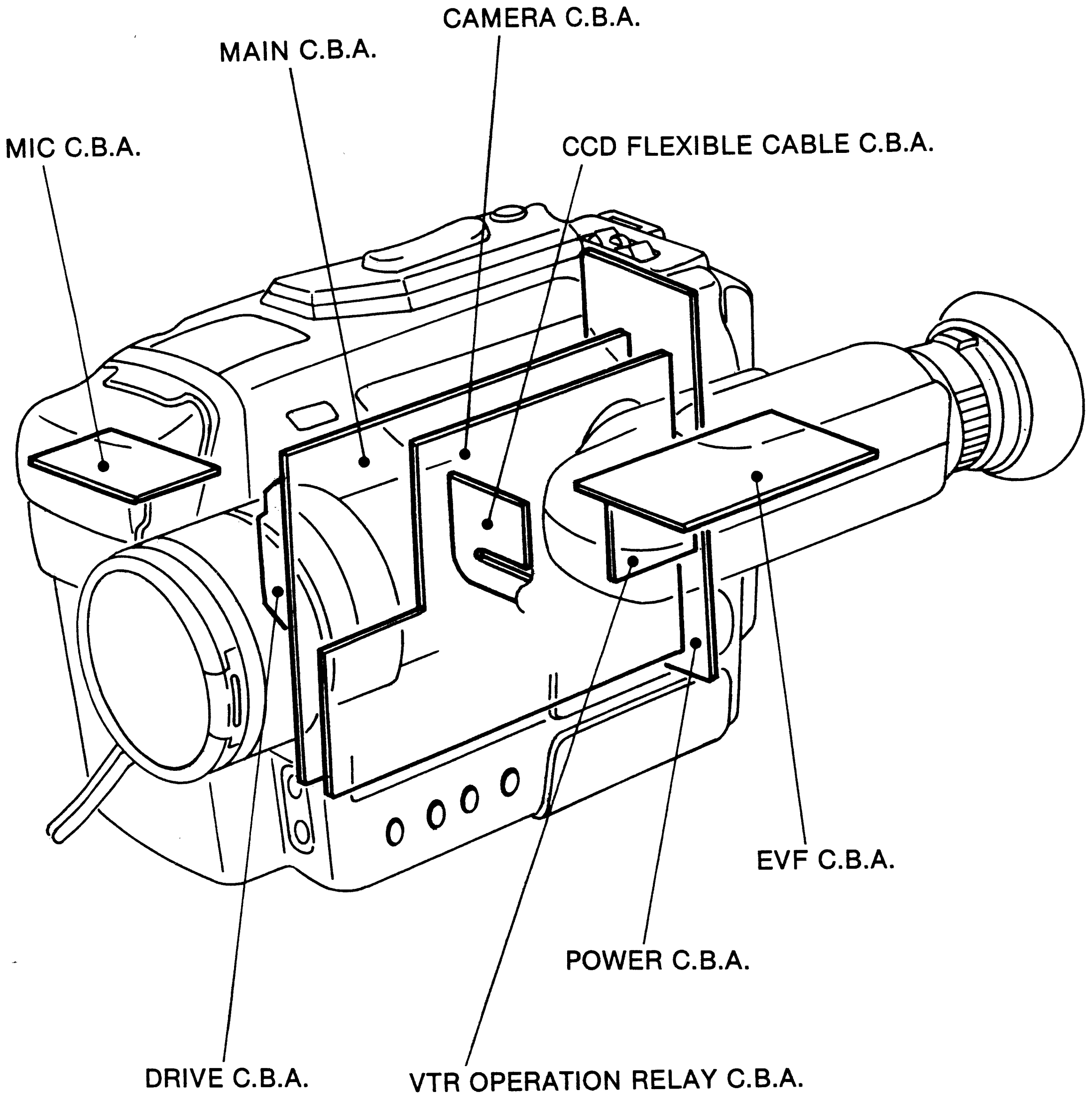
(COMPONENT SIDE)

(FOIL SIDE)

MIC C.B.A.	
Transistor	
Q4301	A-3 Ⓕ
Q4302	A-3 Ⓕ
Q4303	B-1 Ⓒ
Q4304	B-3 Ⓕ
Q4305	B-3 Ⓕ
Q4306	B-3 Ⓕ
Q4307	B-3 Ⓕ
Q4308	B-4 Ⓕ
Q4309	B-4 Ⓕ
Q4310	B-2 Ⓒ
Q4311	B-3 Ⓕ
Q4312	B-2 Ⓒ
Connector	
P4301	B-3 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

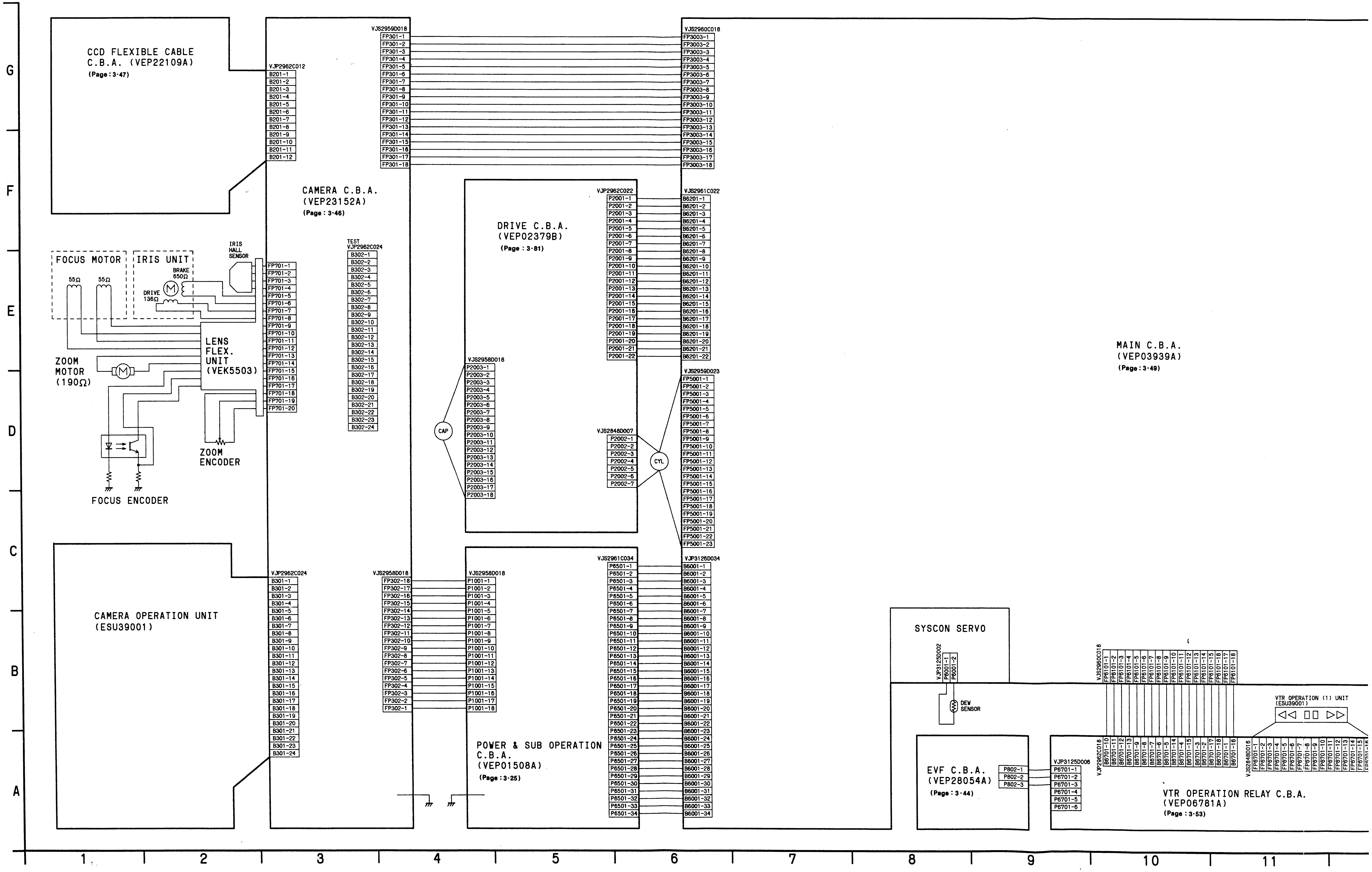
3-29. CIRCUIT BOARD LAYOUT

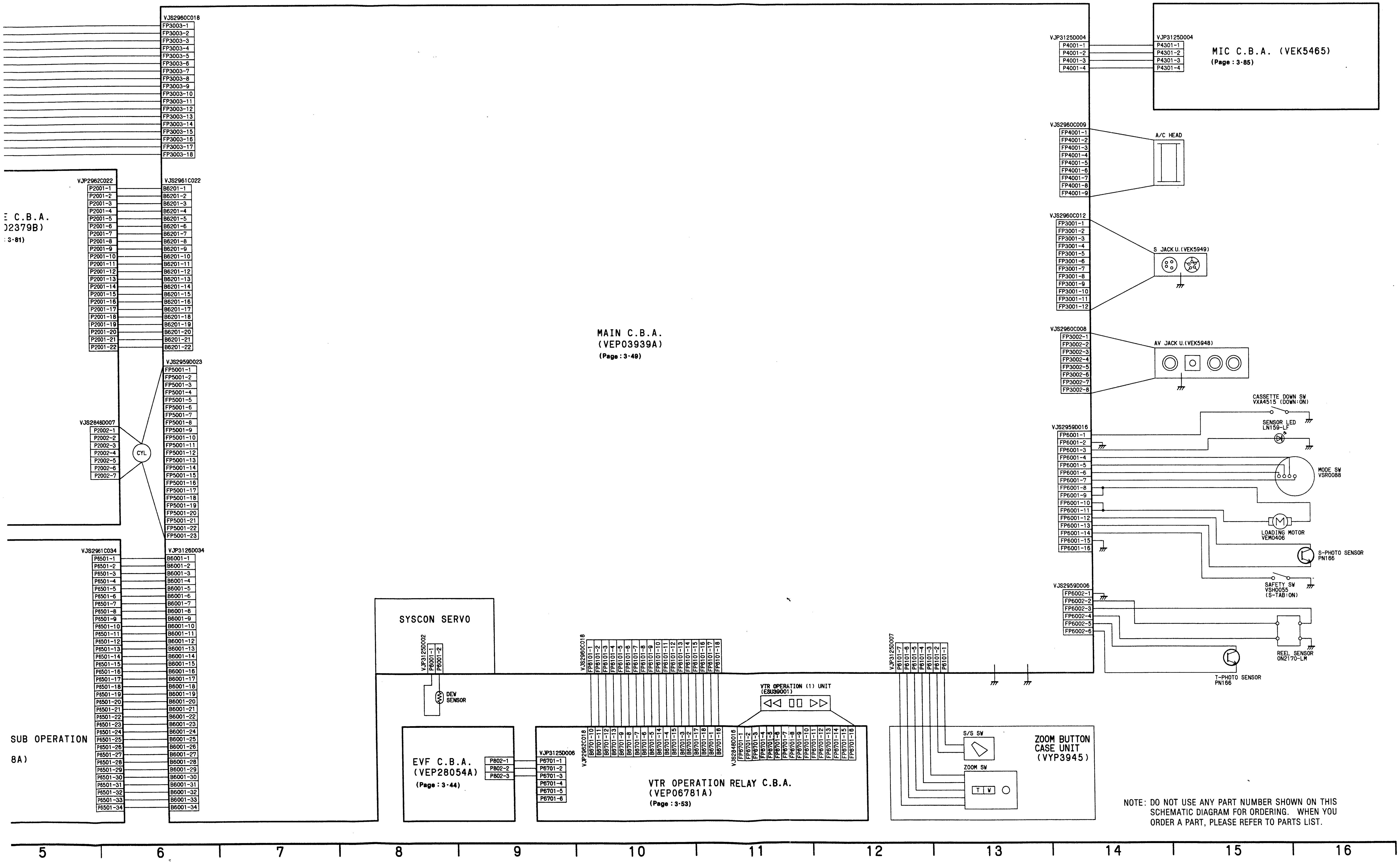

CAMERA C.B.A.
MAIN C.B.A.
MIC C.B.A.
CCD FLEXIBLE CABLE C.B.A.
EVF C.B.A.
POWER C.B.A.
DRIVE C.B.A.
VTR OPERATION RELAY C.B.A.

Back Page:
MIC Section

CS 39 355

3-30. INTERCONNECTION SCHEMATIC DIAGRAM


CCD FLEXIBLE CABLE C.B.A. (VEP22109A)
(Page : 3-47)
CAMERA C.B.A. (VEP23152A)
(Page : 3-46)
DRIVE C.B.A. (VEP02379B)
(Page : 3-81)
MAIN C.B.A. (VEP03939A)
(Page : 3-49)
POWER & SUB OPERATION C.B.A. (VEP01508A)
(Page : 3-25)
CAMERA OPERATION UNIT (ESU39001)
SYSCON SERVO
EVF C.B.A. (VEP28054A)
(Page : 3-44)
VTR OPERATION RELAY C.B.A. (VEP06781A)
(Page : 3-53)
VTR OPERATION (1) UNIT (ESU39001)
FOCUS MOTOR
IRIS UNIT
IRIS HALL SENSOR
BRAKE 650Ω
DRIVE 136Ω
55Ω
55Ω
LENS FLEX. UNIT (VEK5503)
ZOOM MOTOR (190Ω)
ZOOM ENCODER
FOCUS ENCODER
CAP
CYL
DEW SENSOR
TEST
VJS2959D018
VJP2962C012
VJP2962C024
VJS2960C018
VJP2962C022
VJS2961C022
VJS2958D018
VJS2959D023
VJS2848D007
VJS2961C034
VJP3126D034
VJP3125D002
VJS2960C018
VJP2962C018
VJP3125D006
VJS2848D016
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11


VJS2960C018
FP3003-1 … FP3003-18
VJP2962C022
P2001-1 … P2001-22
VJS2961C022
B6201-1 … B6201-22
E C.B.A.
)2379B)
: 3-81)
VJS2959D023
FP5001-1 … FP5001-23
VJS2646D007
P2002-1 … P2002-7
CYL
VJS2961C034
P6501-1 … P6501-34
VJP3126D034
B6001-1 … B6001-34
SUB OPERATION
8A)
MAIN C.B.A.
(VEP03939A)
(Page : 3-49)
SYSCON SERVO
VJP3125D002
P6001-1
P6001-2
DEW SENSOR
EVF C.B.A.
(VEP28054A)
(Page : 3-44)
P802-1
P802-2
P802-3
VJP3125D006
P6701-1 … P6701-6
VJP2962C018
VJS2960C018
FP6101-1 … FP6101-18
B6701-1 … B6701-16
VJS2848D016
FP6701-1 … FP6701-16
VTR OPERATION (1) UNIT
(ESU39001)
VTR OPERATION RELAY C.B.A.
(VEP06781A)
(Page : 3-53)
VJP3125D007
P6101-1 … P6101-7
S/S SW
ZOOM SW
T W
ZOOM BUTTON
CASE UNIT
(VYP3945)
VJP3125D004
P4001-1 … P4001-4
P4301-1 … P4301-4
MIC C.B.A. (VEK5465)
(Page : 3-85)
VJS2960C009
FP4001-1 … FP4001-9
A/C HEAD
VJS2960C012
FP3001-1 … FP3001-12
S JACK U.(VEK5949)
VJS2960C008
FP3002-1 … FP3002-8
AV JACK U.(VEK5948)
CASSETTE DOWN SW
VXA4515 (DOWN:ON)
SENSOR LED
LN159-LF
VJS2959D016
FP6001-1 … FP6001-16
MODE SW
VSR0088
LOADING MOTOR
VEM0406
S-PHOTO SENSOR
PN166
SAFETY SW
VSH0055
(S-TAB:ON)
VJS2959D006
FP6002-1 … FP6002-6
REEL SENSOR
ON2170-LM
T-PHOTO SENSOR
PN166
5
6
7
8
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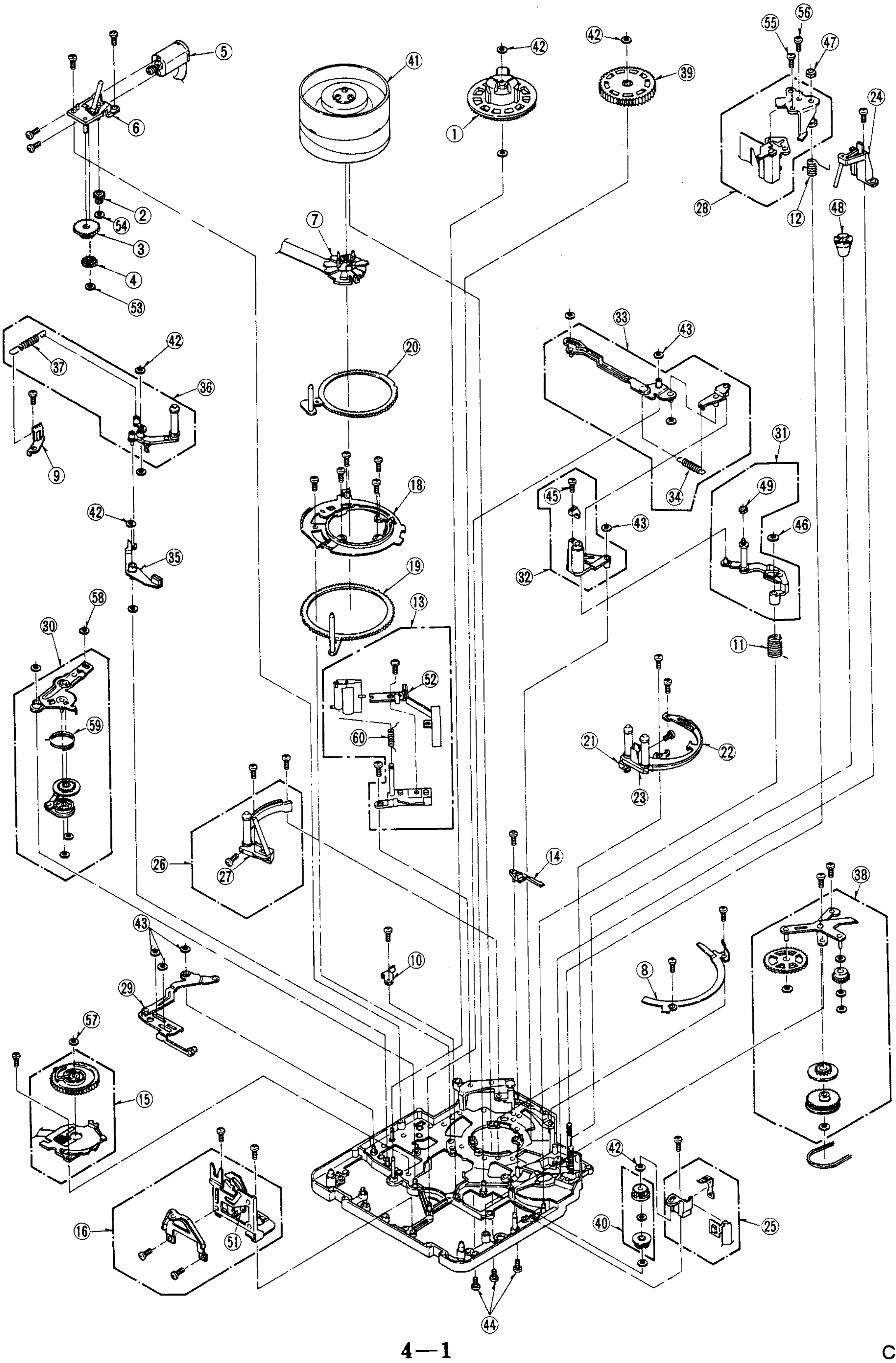
16

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS ❶ VTR MECHANISM SECTION (1)



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(57)
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(51)
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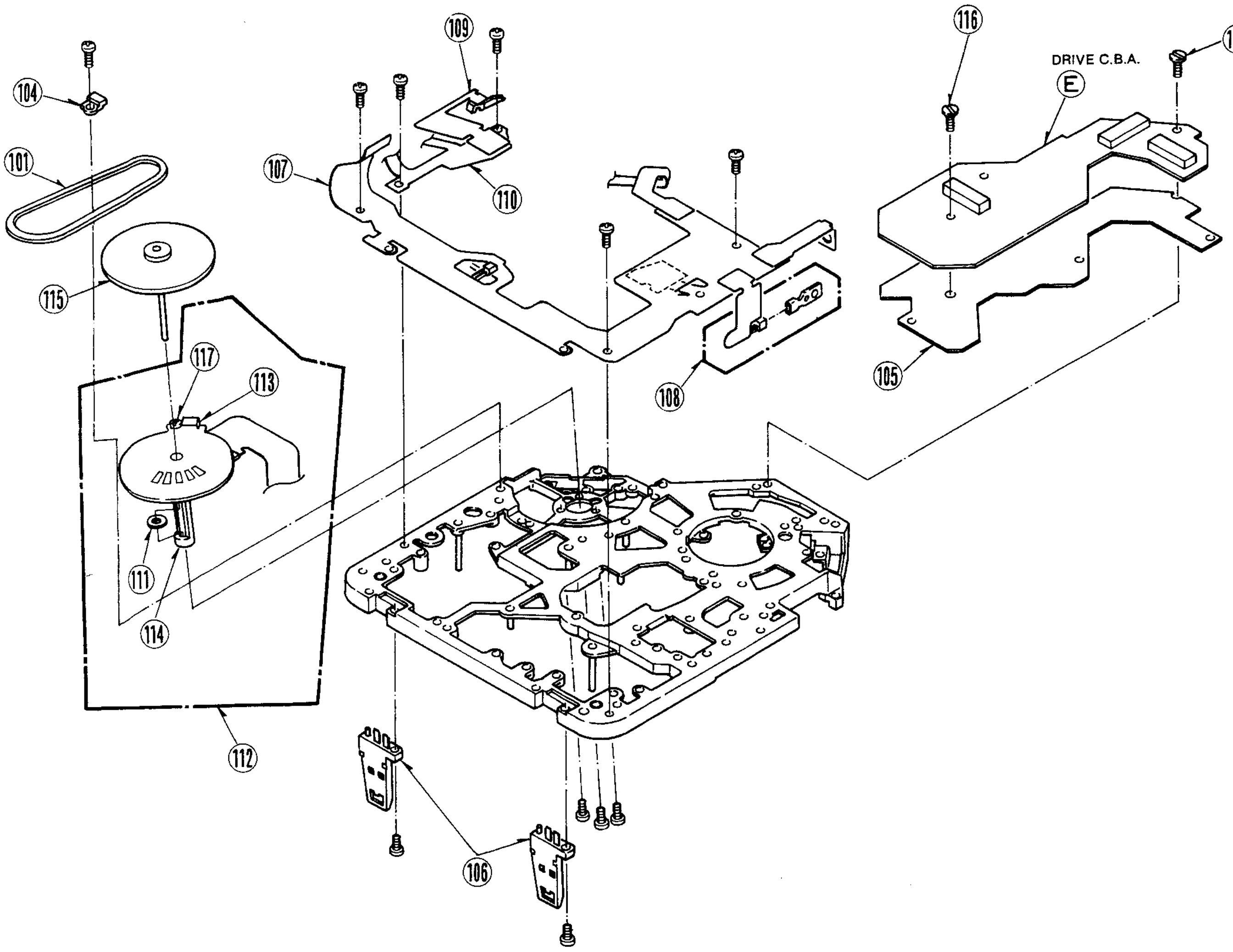
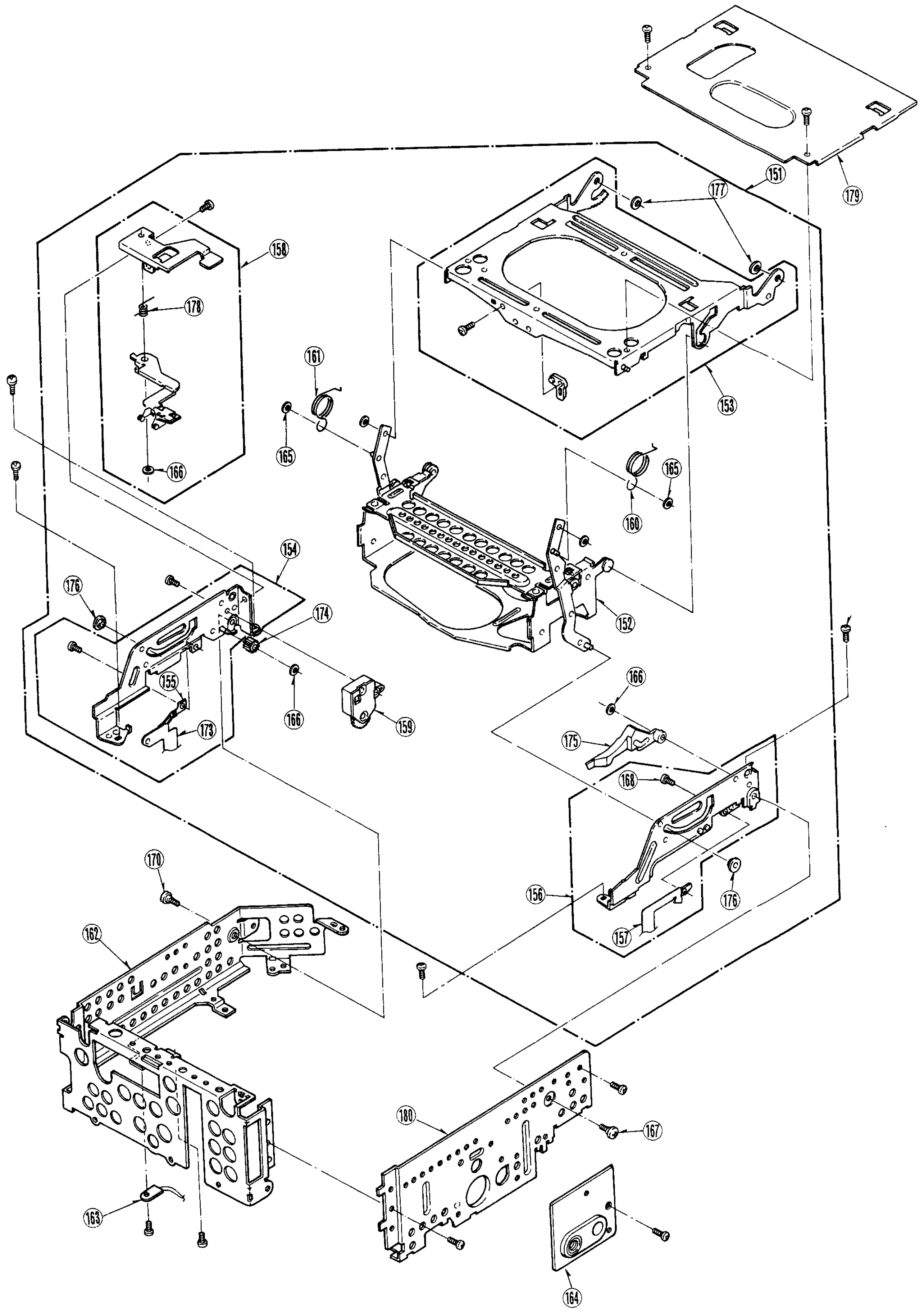
❷ VTR MECHANISM SECTION (2)



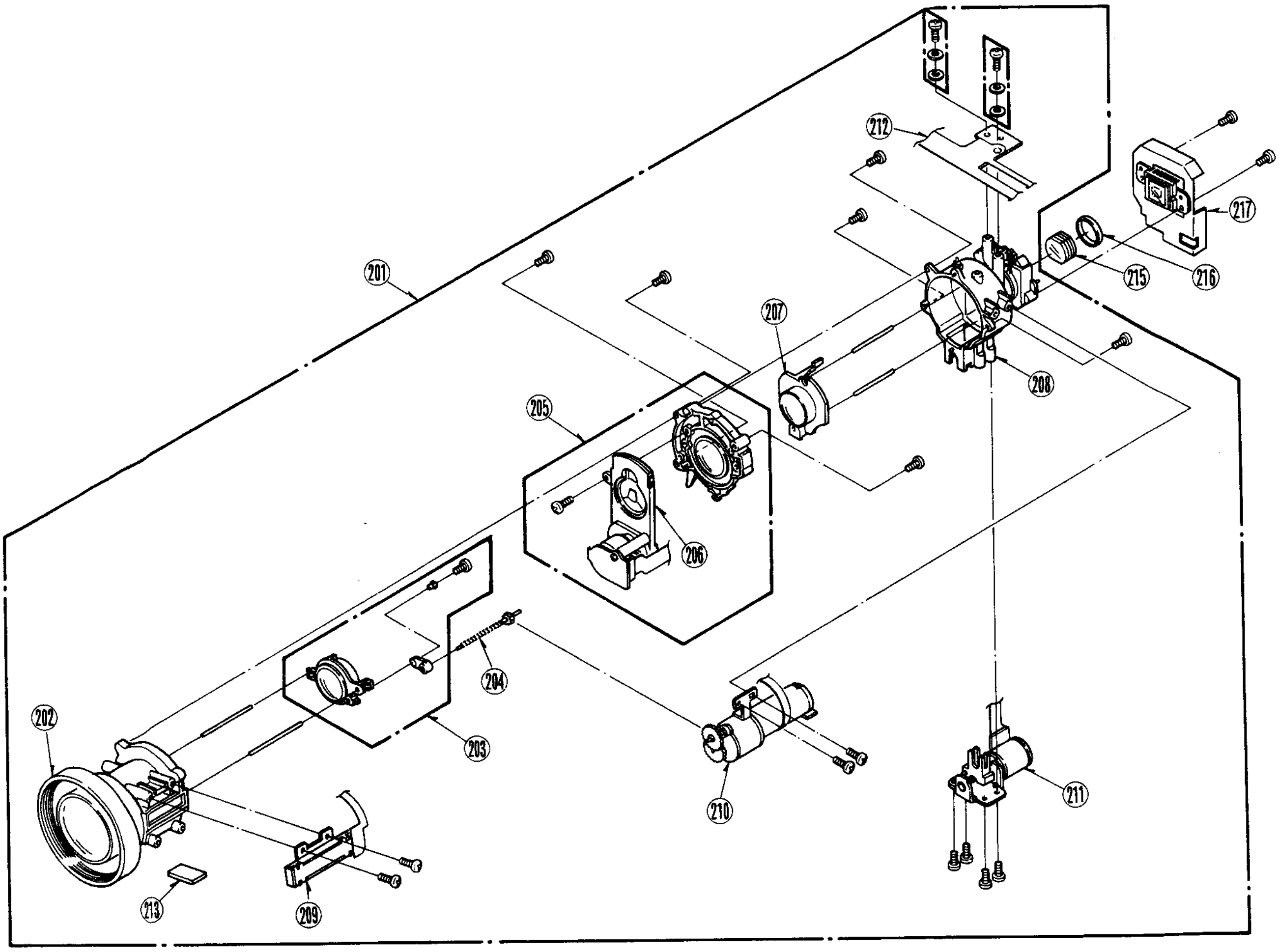
104
101
115
117
113
111
114
112
109
107
110
108
106
116
DRIVE C.B.A.
E
116
105

❸ VTR MECHANISM SECTION (3)



⑮1
⑰9
⑰7
⑮8
⑰8
⑮3
⑯1
⑯5
⑯6
⑯5
⑯0
⑮4
⑰6
⑰4
⑮2
⑮5
⑯6
⑰3
⑮9
⑯6
⑰5
⑯8
⑰6
⑮6
⑮7
⑰0
⑯2
⑱0
⑯7
⑯3
⑯4

❹ CAMERA LENS SECTION


212
217
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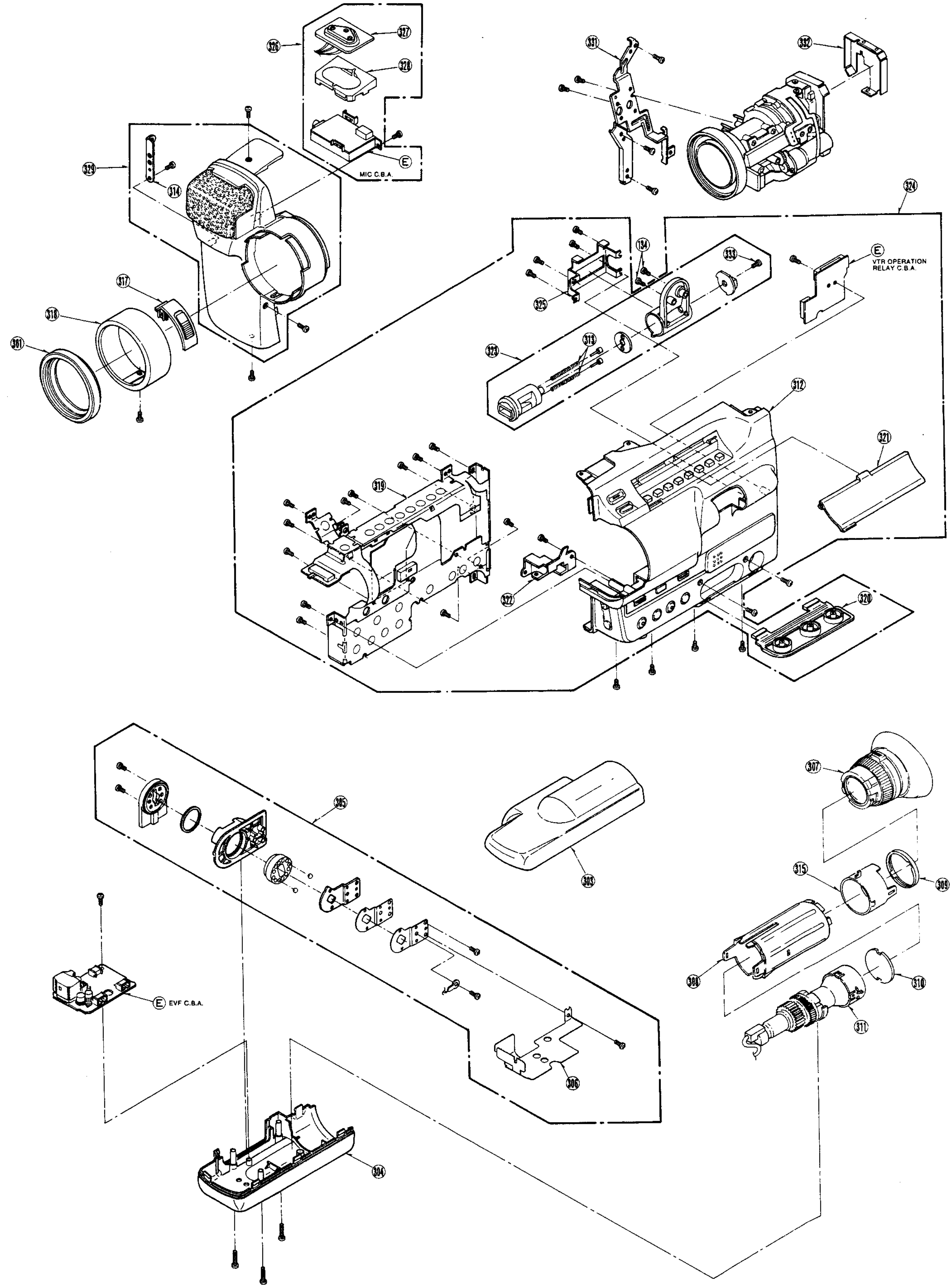
❺ FRAME & CASING PARTS SECTION (1)



326
327
328
MIC C.B.A.
E
329
314
317
318
301
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332
324
134
333
325
E
VTR OPERATION RELAY C.B.A.
323
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307
303
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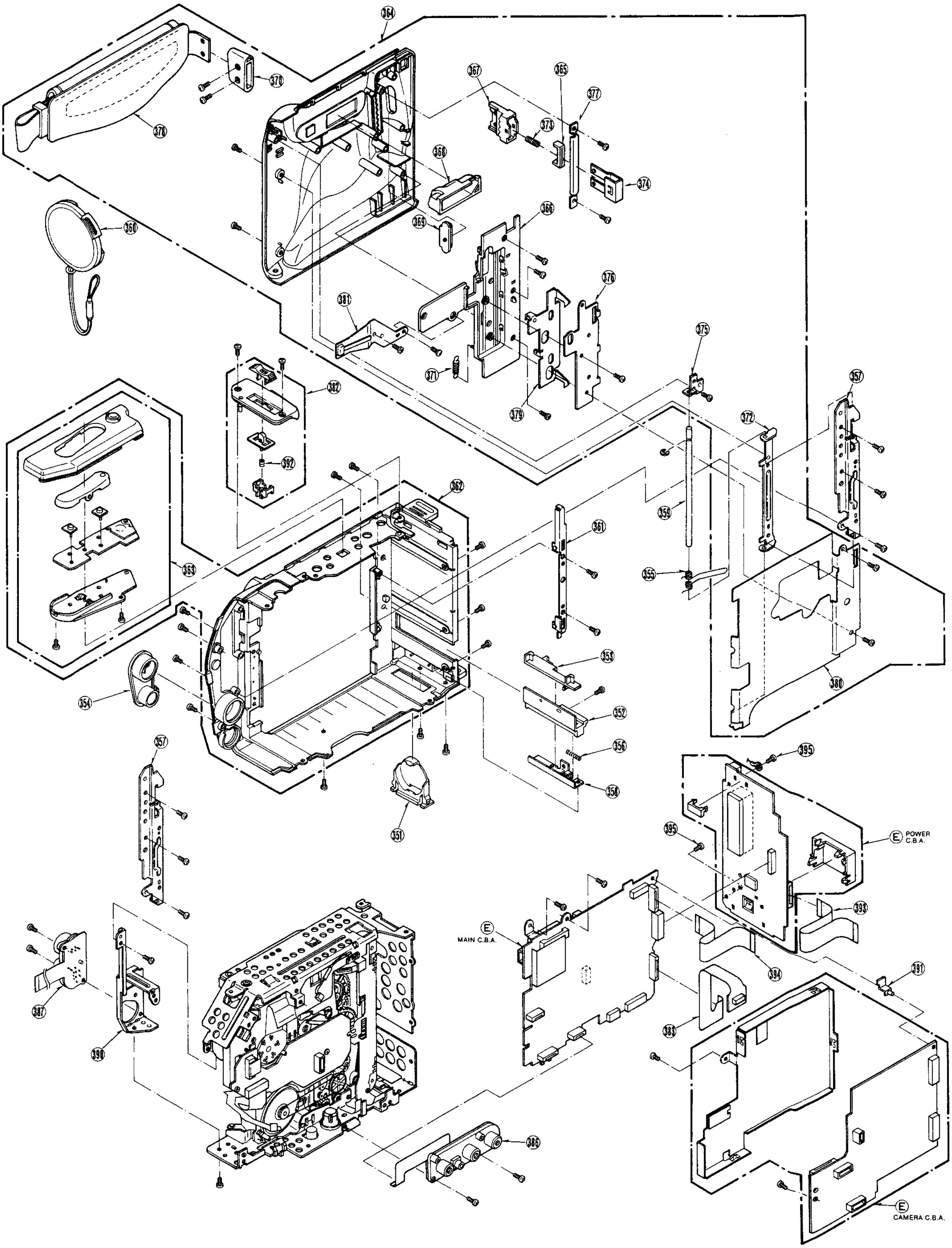
308
310
311
E
EVF C.B.A.
306
304

❻ FRAME & CASING PARTS SECTION (2)


364
370
378
367
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372
392
362
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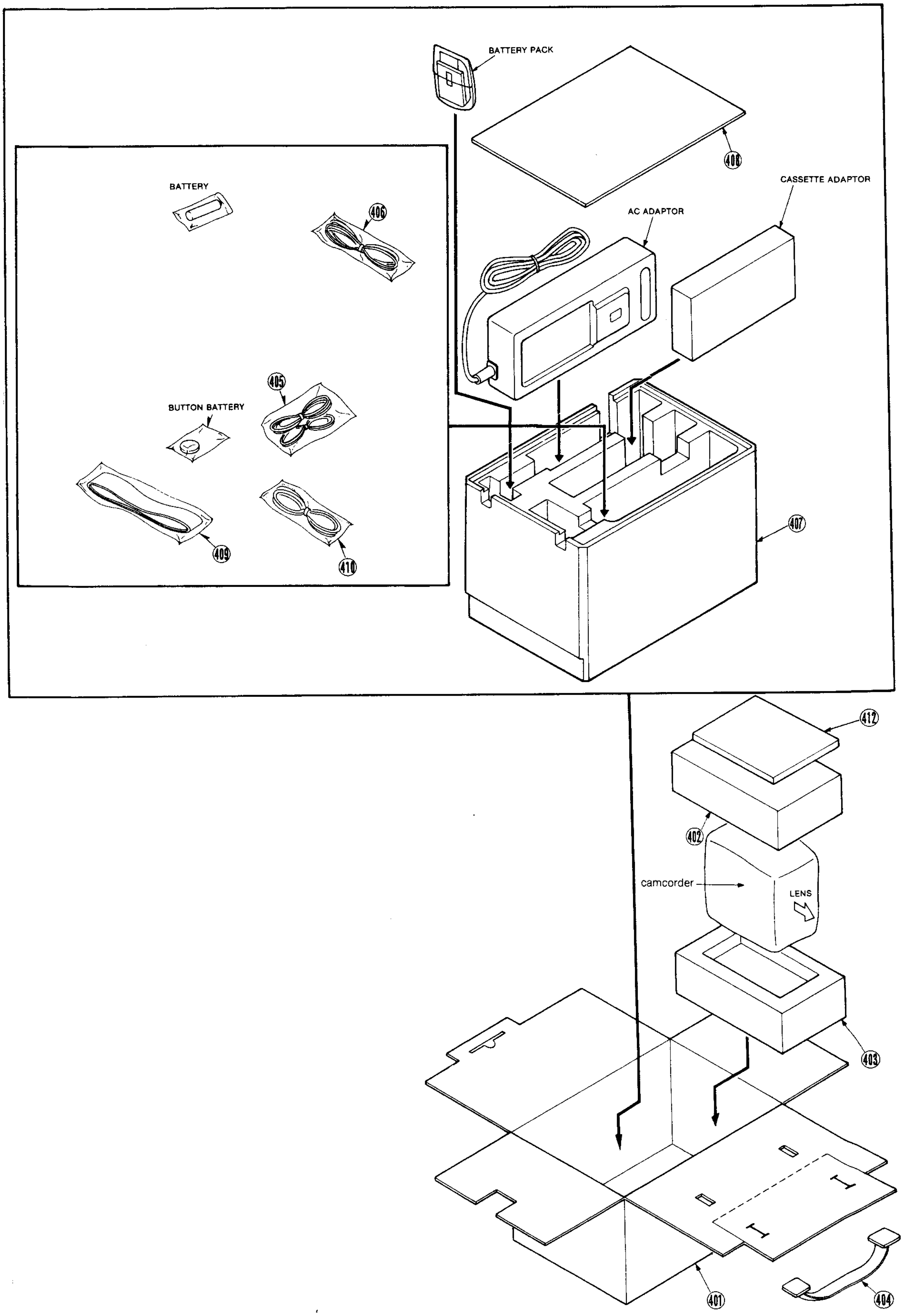
395
351
395
E POWER C.B.A.
393
E MAIN C.B.A.
394
391
387
383
390
386
E CAMERA C.B.A.

❼ PACKING PARTS & ACCESSORIES SECTION


BATTERY PACK
408
CASSETTE ADAPTOR
AC ADAPTOR
BATTERY
406
405
BUTTON BATTERY
409
410
407
412
402
camcorder
LENS
403
401
404

PARTS LIST

SAFETY PRECAUTION

Parts identified by the * symbol are critical for safety.
Replace only with specified part number.

Pos.	Parts Code	Description
VTR MECHANISM SECTION (1)		
1	4822 466 82928	REEL BASE (S)
2	4822 522 33259	BRAKE GEAR (A)
3	4822 522 33261	BRAKE GEAR (B)
4	4822 522 33262	BRAKE GEAR (C)
5	4822 361 21533	LOADING MOTOR(1) U
6	4822 256 91926	MOTOR HOLDER U
7	4822 214 33665	RT CONNECTOR U
8	4822 403 70614	T-RING SLIDER
10	4822 403 70615	PENDULUM ARM HOLDER
11	4822 492 52316	T3 ARM SPRING
12	4822 492 52317	AC HEAD SPRING
13	4822 691 20754	S-BOAT GUIDE U
14	4822 403 70616	T-BOAT GUIDE
15	4822 522 33264	MODE SWITCH U
16	4822 417 50278	LOCK BASE U
18	4822 532 12172	RING GUIDE
19	4822 532 12173	T-RING U
20	4822 532 12174	S-RING U
21	4822 130 83052	LED U
22	4822 462 30556	T-RAIL
23	4822 403 70632	T-BOAT U
24	4822 403 70626	T4 POST U
25	4822 403 70627	T-REEL SENSOR U
26	4822 403 70628	S-RAIL U
28	4822 249 10463	AC HEAD U
29	4822 403 70633	EJECT LEVER U
30	4822 403 70634	SWING ARM U
31	4822 403 70635	T3 ARM U
32	4822 403 70636	PINCH ARM U
33	4822 403 70637	PINCH DRIVE ARM U
35	4822 403 70638	PAD ARM U
36	4822 403 70639	TEN-REG. ARM U
38	4822 528 81474	IDLER U
39	4822 522 33265	RELAY GEAR U
40	4822 522 33266	T-DRIVE GEAR U
41	4822 691 20752	CYLINDER U
48	4822 505 11138	ADJUST NUT
VTR MECHANISM SECTION (2)		
101	4822 358 31189	CAPSTAN BELT
106	4822 276 30414	REC SAFETY SW U
107	4822 320 50277	MECH. FLEXIBLE CARD
108	4822 130 83053	PHOTO (L) U
109	4822 130 83054	PHOTO (R) U
110	4822 403 70627	T-REEL SENSOR U
111	4822 520 30544	LOWER BEARING
112	4822 362 10269	STATOR U
113	4822 691 20751	MR HEAD
115	4822 362 20237	ROTOR U
VTR MECHANISM SECTION (3)		
151	4822 403 70629	GARAGE U
152	4822 403 70622	HOLDER U
153	4822 403 70623	GARAGE (1) U
154	4822 403 70624	STAND (L) U
156	4822 403 70625	STAND (R) U
158	4822 403 70641	TAPE GUIDE U
159	4822 691 20755	DUMPER
163	4822 403 70607	DEW SENSOR
164	4822 466 82931	TRIPOD FRAME
174	4822 522 33263	DUMPER RELAY GEAR
175	4822 403 70617	TAPE OPEN LEVER
179	4822 466 82929	CASS. INNER COVER
CAMERA LENS SECTION		
201	4822 381 11278	LENS U
210	4822 361 30365	ZOOM MOTOR
211	4822 361 21532	FOCUS MOTOR
217	4822 691 20753	CCD U
FRAME & CASING PARTS SECTION (1)		
301	4822 462 71843	LENS HOOD
303	4822 432 60708	EVF CASE (UPPER)
304	4822 432 60713	EVF CASE LOWER U
305	4822 403 70642	ROTATION SEC. FIX. U
307	4822 462 71845	EYE CAP U
308	4822 532 40217	SLIDE PIECE
309	4822 532 52455	EVF RING
310	4822 466 93143	MASKING PLATE
311	4822 131 20478	ITC
315	4822 256 91925	CRT HOLDER
317	4822 411 61877	AGC KNOB
318	4822 432 60706	LENS COVER
319	4822 276 80423	CAMERA OPERATION U
320	4822 432 60704	AV JACK COVER
321	4822 432 60707	VTR DOOR PANEL
323	4822 403 70631	EVF FIX. U
324	4822 432 60709	SLIDE CASE (R) U
326	4822 214 33653	MIC U
329	4822 432 60712	FRONT CASE (1) U
FRAME & CASING PARTS SECTION (2)		
351	4822 432 60703	BATTERY COVER
352	4822 256 91924	BATT. LOCK HOLDER
353	4822 403 70612	BATT. LOCK
354	4822 432 60705	S-VHS JACK COVER
355	4822 492 71127	ROTARY MOVING SPRING
356	4822 492 33339	BATT. LOCK SPRING
358	4822 403 70619	BATT. LOCK ANGLE
360	4822 462 71844	FOOD CAP U
362	4822 432 60711	SIDE CASE (L)(1) U
363	4822 432 60715	ZOOM BUTTON CASE U
364	4822 432 60714	CASSETTE COVER U
365	4822 403 70608	SLIDE PIECE
366	4822 403 70609	CASS. COVER HOLDER
367	4822 403 70611	GRIP BELT HOLDER
370	4822 403 70613	GRIP BELT CAP
373	4822 492 33338	SLIDE LOCK SPRING
374	4822 403 70618	SLIDE ANGLE
377	4822 403 70621	SLIDE RAIL
378	4822 498 30191	GRIP BELT U
382	4822 410 62006	POWER BUTTON PANEL U
383	4822 466 10622	RELAY FLEX. U
386	4822 267 31495	AV JACK U
387	4822 290 40464	S-TERMINAL U
392	4822 492 52227	BATTERY LOCK SPRING

Pos.	Parts Code	Description
PACKING & ACCESSORIES SECTION		
405	4822 321 60759	AV CORD
406	4822 321 61622	4P CORD
409	4822 498 40581	SHOLDER STRAP
410	4822 321 61319	DC OUTPUT CABLE
412	4822 736 52899	OPERAT. INSTRUCTIONS
JIG & TOOLS		
	4822 397 30249	VHS ALIGNMENT TAPE
	4822 397 60152	C.TEMP. CONV. FILTER
	4822 397 60153	C.TEMP. CONV. FILTER
	4822 321 61054	EVR FIXTURE
	4822 209 52265	ROM 5
	4822 395 40055	RETAI. RING REMOVER
	4822 395 50275	POST ADJ. SCREW DRV
	4822 395 90585	CHECK LIGHT
	4822 395 50184	HEX WRENCH SET
	4822 321 61612	18P EXTENSION CABLE
	4822 321 61613	18P EXTENSION CABLE
	4822 321 61346	24P EXTENSION CABLE
	4822 321 61618	18P EXTENSION CABLE
	4822 321 61615	9P EXTENSION CABLE
	4822 321 61614	14P EXTENSION CABLE
	4822 321 61616	6P EXTENSION CABLE
	4822 321 61611	22P EXTENSION CABLE
	4822 321 61619	34P EXTENSION CABLE
	4822 321 61621	EVR CONNECTION CABLE
	4822 321 61617	CONN. CABLE FOR MEAS
	4822 395 50432	H-POSI. ADJ. DRIVER

Notes

Unless otherwise specified,
All resistors are in Ohms and 1/16 W.
All capacitors are in Farads.

Pos.	Parts Code	Description
CAMERA MAIN C.B.A.		
C201	4822 124 11236	T CAP. 68U 16V
C202,03	4822 126 11774	C CAP. 27P 50V
C204	4822 126 11748	C CAP. 0.1U 16V
C205	4822 124 11281	T CAP. 10U 6.3V
C206,07	4822 126 10687	C CAP. 1U 16V
C208	4822 126 11748	C CAP. 0.1U 16V
C209	4822 124 11237	T CAP. 3.3U 16V
C210	4822 126 11954	T CAP. 1.5U 35V
C211	4822 124 11237	T CAP. 3.3U 16V
C212	4822 124 80172	E CAP. 22U 35V
C213,14	4822 126 11774	C CAP. 27P 50V
C215	4822 126 11748	C CAP. 0.1U 16V
C216,17	4822 126 11774	C CAP. 27P 50V
C218	4822 124 11281	T CAP. 10U 6.3V
C219	4822 122 33671	C CAP. 0.22U 16V
C220	4822 126 11767	C CAP. 15P 50V
C221	4822 126 10687	C CAP. 1U 16V
C222	4822 126 11764	C CAP. 12P 50V
C223	4822 125 60178	CAP.
C224	4822 124 11281	T CAP. 10U 6.3V
C226	4822 126 11758	C CAP. 10P 50V
C227,28	4822 124 11281	T CAP. 10U 6.3V
C229	4822 124 11145	T CAP. 10U 4V
C230,31	4822 124 11281	T CAP. 10U 6.3V
C232	4822 126 10687	C CAP. 1U 16V
C233	4822 126 11763	C CAP. 0.01U 50V
C234	4822 126 12197	C CAP. 1.8U 16V
C235	4822 126 10687	C CAP. 1U 16V
C236	4822 126 11748	C CAP. 0.1U 16V
C237	4822 124 11145	T CAP. 10U 4V
C238-40	4822 126 11748	C CAP. 0.1U 16V
C241	4822 126 11769	C CAP. 18P 50V
C242	4822 126 11748	C CAP. 0.1U 16V
C243	4822 126 11751	C CAP. 0.047U 16V
C244	4822 124 11281	T CAP. 10U 6.3V
C245	4822 124 11236	T CAP. 6.8U 16V
C247	4822 126 12221	C CAP. 6P 50V
C250	4822 126 12197	C CAP. 1.8U 16V
C251	4822 126 11954	T CAP. 1.5U 35V
C252	4822 126 11758	C CAP. 10P 50V
C254	4822 126 12197	C CAP. 1.8U 16V
C255	4822 126 11748	C CAP. 0.1U 16V
C258,59	4822 126 11748	C CAP. 0.1U 16V
C260,61	4822 126 11788	C CAP. 56P 50V
C262	4822 126 11758	C CAP. 10P 50V
C263	4822 126 11748	C CAP. 0.1U 16V
C264	4822 126 11758	C CAP. 10P 50V
C267	4822 124 11144	T CAP. 22U 4V
C289	4822 126 11755	C CAP. 5P 50V
C301-03	4822 124 11281	T CAP. 10U 6.3V
C304	4822 122 33725	C CAP. 1U 16V
C305	4822 124 11281	T CAP. 10U 6.3V
C306	4822 122 33725	C CAP. 1U 16V
C307,08	4822 124 11281	T CAP. 10U 6.3V
C311	4822 126 11761	C CAP. 1000P 50V
C312	4822 122 33671	C CAP. 0.22U 16V
C313	4822 126 11768	C CAP. 150P 50V
C314,15	4822 124 11281	T CAP. 10U 6.3V
C318	4822 126 10687	C CAP. 1U 16V
C321	4822 124 11281	T CAP. 10U 6.3V

Pos.	Parts Code	Description
C322	4822 126 10687	C CAP. 1U 16V
C323	4822 126 11763	C CAP. 0.01U 50V
C324	4822 126 11748	C CAP. 0.1U 16V
C325	4822 124 11281	T CAP. 10U 6.3V
C326	4822 126 11748	C CAP. 0.1U 16V
C328,29	4822 124 11281	T CAP. 10U 6.3V
C330,31	4822 126 11759	C CAP. 100P 50V
C332	4822 124 11281	T CAP. 10U 6.3V
C334	4822 124 11145	T CAP. 10U 4V
C335	4822 126 11749	C CAP. 1U 16V
C336-40	4822 126 11788	C CAP. 56P 50V
C341,42	4822 126 11748	C CAP. 0.1U 16V
C343	4822 126 11759	C CAP. 100P 50V
C345	4822 126 11748	C CAP. 0.1U 16V
C357	4822 126 12219	C CAP. 0.022U 16V
C358-62	4822 126 11748	C CAP. 0.1U 16V
C363	4822 126 11764	C CAP. 12P 50V
C365	4822 126 11782	C CAP. 39P 50V
C701	4822 126 12195	C CAP. 0.1U 16V
C703	4822 126 11768	C CAP. 150P 50V
C704	4822 124 11281	T CAP. 10U 6.3V
C705	4822 126 11265	C CAP. 0.068U 16V
C706-09	4822 126 11748	C CAP. 0.1U 16V
C710	4822 126 11751	C CAP. 0.047U 16V
C712	4822 126 11788	C CAP. 56P 50V
C713,14	4822 122 33671	C CAP. 0.22U 16V
C715	4822 124 11281	T CAP. 10U 6.3V
C716	4822 122 33671	C CAP. 0.22U 16V
C717	4822 126 10687	C CAP. 1U 16V
C718	4822 124 11281	T CAP. 10U 6.3V
C719	4822 124 11145	T CAP. 10U 4V
C720,21	4822 126 11761	C CAP. 1000P 50V
C722	4822 126 11748	C CAP. 0.1U 16V
C724,25	4822 126 11748	C CAP. 0.1U 16V
C726	4822 124 80168	E CAP. 47U 16V
C727	4822 126 11781	C CAP. 3300P 50V
C729-31	4822 126 11748	C CAP. 0.1U 16V
C732,33	4822 126 10687	C CAP. 1U 16V
C734	4822 126 11788	C CAP. 56P 50V
C736	4822 126 11748	C CAP. 0.1U 16V
C737	4822 126 11763	C CAP. 0.01U 50V
C738	4822 124 11149	T CAP. 2.2U 16V
C739,40	4822 126 11787	C CAP. 4700P 50V
C741,42	4822 126 12206	C CAP. 0.1U 16V
D201-04	4822 130 80727	DIODE MA110
D207-09	4822 130 80727	DIODE MA110
D211	4822 130 82445	DIODE MA133
D301	4822 130 80727	DIODE MA110
D701	4822 130 80727	DIODE MA110
FL201	4822 157 63946	FILTER
IC201	4822 209 31402	IC MN5155
IC202	4822 209 63776	IC MN3110SA
IC203	4822 209 31391	IC AN2013SB
IC204	4822 209 31392	IC AN2030FAP
IC205	4822 209 30351	IC M62352GP
IC206	4822 209 60335	IC TC7S04F
IC301	4822 209 31401	IC MN4791S
IC302,03	4822 209 31411	IC ZA4030
IC304	4822 209 31407	IC MN6733
IC305	4822 209 31396	IC L7A0745
IC306	4822 209 31406	IC MN6732
IC307	4822 209 31404	IC MN655431SH
IC308	4822 209 63541	IC MN73512XWAS
IC309	4822 209 31398	IC MN1882010V4D
IC310	4822 209 31389	IC AK6420F
IC311	4822 209 31397	IC MN13821-Y
IC312	4822 209 31399	IC MN1882010V4E
IC315	4822 209 31405	IC MN657011H
IC316	4822 209 31403	IC MN5185
IC317	4822 209 31393	IC AN2040SB
IC318	4822 209 63557	IC TC7S08F
IC319,20	4822 209 61751	IC TC7S32F
IC701	4822 209 61975	IC MN12821Q
IC702	4822 209 31408	IC MN6781VMAB
IC703	4822 209 63518	IC AN2585FAP
IC704,05	4822 209 63528	IC LM358DB
IC706	4822 209 31394	IC AN6663S
IC707	4822 209 31306	IC TB6504F
IC708,09	4822 209 63566	IC RH5RE50AA
L201-07	4822 157 63939	COIL 15UH
L208	4822 157 63943	COIL 33UH
L209	4822 157 63941	COIL 6.8UH
L210	4822 157 63939	COIL 15UH
L211	4822 157 63479	COIL 100UH
L212-14	4822 157 63924	COIL
L215,16	4822 157 62461	COIL 4.7UH
L301	4822 157 63941	COIL 6.8UH
L302-04	4822 157 63479	COIL 100UH
L305-11	4822 157 63941	COIL 6.8UH
L314	4822 157 63941	COIL 6.8UH
L316,17	4822 157 63941	COIL 6.8UH
L319	4822 157 63941	COIL 6.8UH
L320	4822 157 63943	COIL 33UH
L330	4822 157 63948	COIL 15UH
L702	4822 157 63467	COIL 100UH
L703	4822 157 63939	COIL 15UH
L704	4822 157 63468	COIL 15UH
Q201	4822 130 63052	TR XP4654
Q203,04	4822 130 62586	TR 2SD2216
Q205	4822 130 63052	TR XP4654
Q207	4822 130 63052	TR XP4654
Q209	4822 130 62586	TR 2SD2216
Q210	4822 130 62579	TR 2SB1462
Q215	4822 130 62577	TR XP4601
Q217	4822 130 62582	TR 2SC4627
Q218,19	4822 130 62578	TR 2SA1790
Q220	4822 130 62579	TR 2SB1462
Q305	4822 130 60872	TR 2SC4176
Q701	4822 130 62586	TR 2SD2216
Q702	4822 130 61076	TR 2SB1219
QR301	4822 130 62563	TR UN9211
QR701,02	4822 130 62563	TR UN9211
R201	4822 116 83809	RES. 1M 1/32W
R202	4822 116 83832	RES. 33K 1/32W
R203	4822 116 83819	RES. 18K 1/32W
R204	4822 116 83809	RES. 1M 1/32W
R205	4822 116 83832	RES. 33K 1/32W
R206	4822 116 81061	RES. 180
R207	4822 116 83806	RES. 1K 1/32W
R208	4822 116 83807	RES. 10K 1/32W
R209	4822 116 81067	RES. 220
R210	4822 116 83807	RES. 10K 1/32W
R211	4822 116 83809	RES. 1M 1/32W
R212	4822 116 81099	RES. 680
R213	4822 116 83849	RES. 820 1/32W
R214,15	4822 116 81099	RES. 680
R216	4822 116 83828	RES. 27K 1/32W

Pos.	Parts Code	Description
R217	4822 116 83809	RES. 1M 1/32W
R218	4822 116 81045	RES. 100
R219	4822 116 83819	RES. 18K 1/32W
R228	4822 116 83829	RES. 270K 1/32W
R229	4822 116 81099	RES. 680
R231	4822 116 83821	RES. 180K 1/32W
R232	4822 116 83813	RES. 120K 1/32W
R240	4822 116 83844	RES. 56K 1/32W
R241	4822 116 83827	RES. 2.7K 1/32W
R242	4822 116 83831	RES. 3.3K 1/32W
R243	4822 116 83838	RES. 4.7K 1/32W
R244	4822 116 83806	RES. 1K 1/32W
R245	4822 116 83808	RES. 100K
R246	4822 116 52239	RES. 120K 1/4W
R251	4822 116 83844	RES. 56K 1/32W
R253	4822 116 83838	RES. 4.7K 1/32W
R255,56	4822 116 83805	RES. 100 1/32W
R257	4822 116 83849	RES. 820 1/32W
R258	4822 116 83806	RES. 1K 1/32W
R263	4822 116 81078	RES. 330
R267	4822 051 20271	RES. 270 1/10W
R270	4822 116 83812	RES. 12K 1/32W
R271	4822 116 83811	RES. 1.2K 1/32W
R272	4822 116 83849	RES. 820 1/32W
R273,74	4822 116 83806	RES. 1K 1/32W
R275	4822 116 83811	RES. 1.2K 1/32W
R276	4822 116 83806	RES. 1K 1/32W
R277	4822 116 83838	RES. 4.7K 1/32W
R278	4822 116 83853	RES. 820K 1/32W
R280	4822 116 83823	RES. 2.2K 1/32W
R281	4822 116 83832	RES. 33K 1/32W
R282	4822 116 83816	RES. 15K 1/32W
R289	4822 116 83806	RES. 1K 1/32W
R301	4822 116 83844	RES. 56K 1/32W
R302,03	4822 116 83824	RES. 22K 1/32W
R305,06	4822 116 83838	RES. 4.7K 1/32W
R307	4822 116 83828	RES. 27K 1/32W
R308-10	4822 116 83838	RES. 4.7K 1/32W
R311	4822 116 81094	RES. 56
R312	4822 116 81073	RES. 270
R313	4822 116 83838	RES. 4.7K 1/32W
R318	4822 116 83838	RES. 4.7K 1/32W
R319	4822 116 83843	RES. 5.6K 1/32W
R320	4822 116 81051	RES. 120
R321	4822 116 81045	RES. 100
R322	4822 116 81051	RES. 120
R323,24	4822 116 83807	RES. 10K 1/32W
R325,26	4822 116 83806	RES. 1K 1/32W
R329	4822 116 83807	RES. 10K 1/32W
R330-32	4822 116 83806	RES. 1K 1/32W
R333,34	4822 116 83807	RES. 10K 1/32W
R335	4822 116 83838	RES. 4.7K 1/32W
R337	4822 116 83816	RES. 15K 1/32W
R338,39	4822 116 83838	RES. 4.7K 1/32W
R340	4822 116 83816	RES. 15K 1/32W
R341	4822 116 83849	RES. 820 1/32W
R343-46	4822 116 81045	RES. 100
R347	4822 116 81099	RES. 680
R348-55	4822 116 83807	RES. 10K 1/32W
R356-71	4822 116 83806	RES. 1K 1/32W
R372-81	4822 116 83807	RES. 10K 1/32W
R382,83	4822 116 83806	RES. 1K 1/32W
R387-91	4822 116 83838	RES. 4.7K 1/32W
R392	4822 116 83811	RES. 1.2K 1/32W
R393	4822 116 83838	RES. 4.7K 1/32W

Pos.	Parts Code	Description
R394	4822 116 83806	RES. 1K 1/32W
R396,97	4822 116 83807	RES. 10K 1/32W
R398	4822 116 81095	RES. 560
R399	4822 116 83837	RES. 470 1/32W
R400	4822 116 83806	RES. 1K 1/32W
R405-29	4822 116 83806	RES. 1K 1/32W
R430-37	4822 116 83805	RES. 100 1/32W
R438-54	4822 116 83806	RES. 1K 1/32W
R456-78	4822 116 83806	RES. 1K 1/32W
R479-82	4822 116 83805	RES. 100 1/32W
R483-86	4822 116 83806	RES. 1K 1/32W
R491-99	4822 116 83806	RES. 1K 1/32W
R701,02	4822 116 83839	RES. 47K 1/32W
R704,05	4822 116 83838	RES. 4.7K 1/32W
R706,07	4822 116 83807	RES. 10K 1/32W
R708	4822 116 83838	RES. 4.7K 1/32W
R710	4822 116 83807	RES. 10K 1/32W
R711	4822 116 82791	RES. 10K
R712	4822 116 82839	RES. 30K
R713	4822 116 83813	RES. 120K 1/32W
R714	4822 116 83824	RES. 22K 1/32W
R715	4822 116 83813	RES. 120K 1/32W
R716	4822 116 83833	RES. 330K 1/32W
R717	4822 116 83843	RES. 5.6K 1/32W
R718	4822 116 83807	RES. 10K 1/32W
R719	4822 116 83817	RES. 150K 1/32W
R720	4822 116 83838	RES. 4.7K 1/32W
R721	4822 116 83826	RES. 2.2M 1/32W
R722	4822 116 83815	RES. 1.5K 1/32W
R723	4822 116 83823	RES. 2.2K 1/32W
R724	4822 116 83839	RES. 47K 1/32W
R725	4822 116 83838	RES. 4.7K 1/32W
R726	4822 116 83806	RES. 1K 1/32W
R727	4822 116 83812	RES. 12K 1/32W
R728	4822 116 83806	RES. 1K 1/32W
R729	4822 116 83812	RES. 12K 1/32W
R730	4822 116 83839	RES. 47K 1/32W
R731	4822 116 81061	RES. 180
R732	4822 116 83823	RES. 2.2K 1/32W
R733,34	4822 051 30338	RES. 3.3
R735	4822 116 83839	RES. 47K 1/32W
R736	4822 116 83852	RES. 82K 1/32W
R738	4822 116 83809	RES. 1M 1/32W
R739	4822 116 81067	RES. 220
R740	4822 116 83831	RES. 3.3K 1/32W
R741	4822 116 83819	RES. 18K 1/32W
R742	4822 116 83839	RES. 47K 1/32W
R743	4822 116 83844	RES. 56K 1/32W
R744	4822 116 83824	RES. 22K 1/32W
R745	4822 116 83849	RES. 820 1/32W
R746	4822 116 83824	RES. 22K 1/32W
R747	4822 116 81067	RES. 220
R748	4822 116 83807	RES. 10K 1/32W
R759	4822 116 83807	RES. 10K 1/32W
VR201	4822 101 30782	V RES. 200K
VR701	4822 101 30785	V RES. 50K
X201	4822 242 81229	CRYSTAL OSCILLATOR
X301,02	4822 242 80349	CRYSTAL OSCILLATOR
X701	4822 242 81225	CRYSTAL OSCILLATOR
X702	4822 242 80349	CRYSTAL OSCILLATOR
EVF C.B.A.		
C801	4822 121 70139	P CAP. 0.1U 16V
C802	4822 124 11291	T CAP. 47U 10V
C803	4822 126 11768	C CAP. 150P 50V
C804	4822 122 33671	C CAP. 0.22U 16V
C805	4822 124 80167	E CAP. 47U 16V

Pos.	Parts Code	Description
C806	5322 122 32654	C CAP. 0.022U 50V
C807	4822 126 12196	C CAP. 1U 16V
C808	4822 126 10687	C CAP. 1U 16V
C809	4822 124 80167	E CAP. 47U 16V
C810	4822 126 11273	C CAP. 2700P 10V
C811	4822 124 11291	T CAP. 47U 10V
C812	4822 126 12222	C CAP. 100P 50V
C813	4822 126 11802	C CAP. 330P
C814	4822 124 80171	E CAP. 1U 50V
C815	4822 126 11802	C CAP. 330P
C816	4822 122 33731	C CAP. 0.1U 25V
C818	4822 126 11802	C CAP. 330P
C831	4822 122 33731	C CAP. 0.1U 25V
D801	4822 130 80729	DIODE MA141A
D802	4822 130 82019	DIODE SFPL-52
IC801	4822 209 62592	IC AN2514S
L801	4822 157 63949	COIL
L802	4822 157 63938	COIL
L803	4822 157 62968	COIL 47UH
Q801	4822 130 61075	TR 2SB1218
Q802	4822 130 61087	TR 2SD968A-S
Q803	4822 130 60667	TR 2SA1532-B
R801	4822 116 82628	RES. 44.2K 1/10W
R802	4822 051 20398	RES. 3.9 1/10W
R805	4822 116 81046	RES. 1K
R808	4822 116 81074	RES. 2.7K
R809	4822 116 81049	RES. 1M
R810	4822 116 83724	RES. 100K 1/10W
R812	4822 116 81046	RES. 1K
R813	4822 116 81084	RES. 390
R814	4822 116 81068	RES. 2.2K
R815	4822 116 81079	RES. 3.3K
R816	4822 116 81091	RES. 4.7K
R817	4822 116 81756	RES. 2.4K
R818	4822 116 81057	RES. 15K
R819	4822 051 20395	RES. 3.9M 1/10W
R820	4822 051 20475	RES. 4.7M 1/10W
R821	4822 116 82349	RES. 1M 1/10W
R823	4822 051 30398	RES. 3.9
R831	4822 116 81049	RES. 1M
T801	4822 148 81264	TRANSFORMER
VR801	4822 100 30091	V RES. 220
VR802	4822 100 30085	V RES. 50K
VR803	4822 101 30787	V RES.
VR804	4822 101 30786	V RES. 2.2M

MIC C.B.A.

C4301	4822 122 33735	C CAP. 0.027U 25V
C4302	4822 126 11761	C CAP. 1000P 50V
C4303	4822 126 11762	C CAP. 0.01U 50V
C4305,06	4822 126 11762	C CAP. 0.01U 50V
C4307	4822 126 12203	C CAP. 0.082U 16V
C4308	4822 126 11761	C CAP. 1000P 50V
C4309	4822 122 33735	C CAP. 0.027U 25V
C4310	4822 126 12217	C CAP. 270P 50V
C4311	4822 124 10759	T CAP. 1U 16V
C4312	4822 122 33735	C CAP. 0.027U 25V
C4313	4822 126 11761	C CAP. 1000P 50V
C4314	4822 126 11762	C CAP. 0.01U 50V
C4316,17	4822 126 11762	C CAP. 0.01U 50V
C4318	4822 124 10759	T CAP. 1U 16V
C4320	4822 126 11761	C CAP. 1000P 50V

Pos.	Parts Code	Description
C4321	4822 124 80165	E CAP. 33U 6.3V
C4322	4822 124 10795	T CAP. 2.2U 10V
C4324	4822 124 80164	E CAP. 100U 6.3V
C4325	4822 126 11762	C CAP. 0.01U 50V
C4326	4822 124 10759	T CAP. 1U 16V
C4328	4822 126 11761	C CAP. 1000P 50V
C4329	4822 124 80165	E CAP. 33U 6.3V
C4330	4822 124 10795	T CAP. 2.2U 10V
C4334	4822 124 80163	E CAP. 100U 4V
D4301-03	4822 130 83042	DIODE MA8056-M
Q4301	4822 130 62586	TR 2SD2216
Q4302	4822 130 63053	TR 2SC3929
Q4303,04	4822 130 62586	TR 2SD2216
Q4305	4822 130 63053	TR 2SC3929
Q4306	4822 130 62586	TR 2SD2216
Q4307,08	4822 130 63053	TR 2SC3929
Q4309,10	4822 130 62586	TR 2SD2216
Q4311	4822 130 63053	TR 2SC3929
Q4312	4822 130 62586	TR 2SD2216
R4301	4822 051 20222	RES. 2.2K 1/10W
R4302	4822 051 20104	RES. 100K 1/10W
R4303	4822 051 20273	RES. 27K 1/10W
R4304	4822 116 81101	RES. 6.8K
R4305	4822 116 81079	RES. 3.3K
R4306	4822 116 81048	RES. 100K
R4307	4822 116 81054	RES. 120K
R4308	4822 116 81068	RES. 2.2K
R4309	4822 116 81057	RES. 15K
R4311	4822 116 81057	RES. 15K
R4312	4822 051 20222	RES. 2.2K 1/10W
R4313	4822 051 20104	RES. 100K 1/10W
R4314	4822 051 20273	RES. 27K 1/10W
R4315	4822 116 81101	RES. 6.8K
R4316	4822 116 81079	RES. 3.3K
R4317	4822 116 81058	RES. 150K
R4318	4822 116 81048	RES. 100K
R4319,20	4822 116 81047	RES. 10K
R4321	4822 116 81075	RES. 27K
R4322	4822 116 81068	RES. 2.2K
R4323	4822 051 20222	RES. 2.2K 1/10W
R4324	4822 051 20104	RES. 100K 1/10W
R4325	4822 051 20273	RES. 27K 1/10W
R4326	4822 116 81101	RES. 6.8K
R4327	4822 116 81079	RES. 3.3K
R4328	4822 116 81048	RES. 100K
R4329	4822 116 81054	RES. 120K
R4330	4822 116 81068	RES. 2.2K
R4331	4822 116 81057	RES. 15K
R4333	4822 116 81057	RES. 15K
R4334	4822 116 81045	RES. 100
R4335	4822 051 20104	RES. 100K 1/10W
R4336	4822 116 83788	RES. 56K 1/10W
R4337	4822 116 81101	RES. 6.8K
R4338	4822 116 81095	RES. 560
R4339,40	4822 116 81079	RES. 3.3K
R4341	4822 116 81081	RES. 33K
R4342	4822 116 81068	RES. 2.2K
R4343	4822 116 81045	RES. 100
R4344	4822 051 20104	RES. 100K 1/10W
R4345	4822 116 83788	RES. 56K 1/10W
R4346	4822 116 81101	RES. 6.8K
R4347	4822 116 81095	RES. 560
R4348,49	4822 116 81079	RES. 3.3K
R4350	4822 116 81081	RES. 33K
R4351	4822 116 81067	RES. 220

Pos.	Parts Code	Description
MAIN C.B.A.		
C3002	4822 124 23585	E CAP. 47U 4V
C3003	4822 124 23584	E CAP. 220U 4V
C3004	4822 124 80162	E CAP. 470U 4V
C3005	4822 126 11769	C CAP. 18P 50V
C3006	4822 126 11775	C CAP. 270P 50V
C3007	4822 122 33788	C CAP. 82P 50V
C3008	4822 126 11775	C CAP. 270P 50V
C3009	4822 126 11772	C CAP. 220P 50V
C3010	4822 126 11775	C CAP. 270P 50V
C3011,12	4822 124 11105	T CAP. 4.7U 10V
C3013	4822 124 11281	T CAP. 10U 6.3V
C3014	4822 126 11763	C CAP. 0.01U 50V
C3015	4822 126 11788	C CAP. 56P 50V
C3016	4822 122 33777	C CAP. 470P 50V
C3017	4822 126 11788	C CAP. 56P 50V
C3018	4822 126 11762	C CAP. 0.01U 50V
C3019	4822 126 11764	C CAP. 12P 50V
C3021,22	4822 126 11771	C CAP. 22P 50V
C3023	4822 126 11763	C CAP. 0.01U 50V
C3024	4822 124 11281	T CAP. 10U 6.3V
C3025	4822 126 10687	C CAP. 1U 16V
C3026	4822 126 12209	C CAP. 0.01U 25V
C3027	4822 126 11748	C CAP. 0.1U 16V
C3028	4822 126 10687	C CAP. 1U 16V
C3029	4822 126 11782	C CAP. 39P 50V
C3030	4822 126 11772	C CAP. 220P 50V
C3031	4822 126 11759	C CAP. 100P 50V
C3032	4822 126 11788	C CAP. 56P 50V
C3033,34	4822 126 11763	C CAP. 0.01U 50V
C3036	4822 126 11777	C CAP. 33P 50V
C3037	4822 126 11771	C CAP. 22P 50V
C3042	4822 126 11792	C CAP. 68P 50V
C3043	4822 122 33788	C CAP. 82P 50V
C3045	4822 126 11777	C CAP. 33P 50V
C3047	4822 124 11281	T CAP. 10U 6.3V
C3048	4822 126 10687	C CAP. 1U 16V
C3049	4822 124 10759	T CAP. 1U 16V
C3050	4822 126 11773	C CAP. 2200P 50V
C3051	4822 126 11759	C CAP. 100P 50V
C3052	4822 126 11748	C CAP. 0.1U 16V
C3059	4822 126 11787	C CAP. 4700P 50V
C3060	4822 126 12201	C CAP. 4.7U 16V
C3061	4822 126 11767	C CAP. 15P 50V
C3062	4822 126 11782	C CAP. 39P 50V
C3065	4822 126 12209	C CAP. 0.01U 25V
C3071	4822 126 11788	C CAP. 56P 50V
C3072	4822 126 12209	C CAP. 0.01U 25V
C3075	4822 124 11281	T CAP. 10U 6.3V
C3076	4822 124 11105	T CAP. 4.7U 10V
C3080	4822 122 33788	C CAP. 82P 50V
C3081	4822 126 11771	C CAP. 22P 50V
C3085	4822 126 11758	C CAP. 10P 50V
C3203	4822 126 11765	C CAP. 120P 50V
C3204	4822 124 23584	E CAP. 220U 4V
C3208	4822 126 11748	C CAP. 0.1U 16V
C3210	4822 126 11748	C CAP. 0.1U 16V
C3214	4822 126 12204	C CAP. 0.039U 25V
C3215	4822 126 11748	C CAP. 0.1U 16V
C3801	4822 126 10687	C CAP. 1U 16V
C3802	4822 126 11257	C CAP. 0.1U 16V
C3803	4822 126 10687	C CAP. 1U 16V
C3804	4822 126 11759	C CAP. 100P 50V
C3805	4822 126 12201	C CAP. 4.7U 16V
C3806,07	4822 126 11759	C CAP. 100P 50V
C3808,09	4822 126 11774	C CAP. 27P 50V

Pos.	Parts Code	Description
C3810	4822 124 11289	T CAP. 33U 6.3V
C3811,12	4822 126 12209	C CAP. 0.01U 25V
C3813	4822 126 11748	C CAP. 0.1U 16V
C3814	4822 124 11281	T CAP. 10U 6.3V
C3816	4822 126 11763	C CAP. 0.01U 50V
C3818	4822 126 11748	C CAP. 0.1U 16V
C4003	4822 124 11281	T CAP. 10U 6.3V
C4004	4822 124 11237	T CAP. 3.3U 16V
C4006	4822 126 11287	C CAP. 5600P 50V
C4007	4822 126 12218	C CAP. 8200P 50V
C4009	4822 124 11149	T CAP. 2.2U 16V
C4010	4822 126 11776	C CAP. 2700P 50V
C4011	4822 126 11766	C CAP. 1200P 50V
C4012	4822 126 11768	C CAP. 150P 50V
C4013	4822 124 11149	T CAP. 2.2U 16V
C4014	4822 126 12208	C CAP. 0.015U 16V
C4015	4822 124 23585	E CAP. 47U 4V
C4017,18	4822 124 11237	T CAP. 3.3U 16V
C4019	4822 124 11105	T CAP. 4.7U 10V
C4021	4822 124 11232	T CAP. 47U 4V
C4022	4822 124 11103	T CAP. 10U 10V
C4023	5322 122 32654	C CAP. 0.022U 50V
C4024	4822 126 12207	C CAP. 0.012U 16V
C4025	4822 126 12205	C CAP. 6800P 10V
C4026	4822 126 11783	C CAP. 390P 50V
C4035	4822 122 33902	C CAP. 0.012U 50V
C4036,37	4822 124 11237	T CAP. 3.3U 16V
C4038,39	4822 124 11281	T CAP. 10U 6.3V
C4045	4822 124 11281	T CAP. 10U 6.3V
C4046	4822 124 11149	T CAP. 2.2U 16V
C4047,48	4822 126 12223	C CAP. 560P 50V
C4049	4822 126 11772	C CAP. 220P 50V
C4050	4822 126 11766	C CAP. 1200P 50V
C4052	4822 126 11787	C CAP. 4700P 50V
C4053	4822 126 11271	C CAP. 3900P 50V
C4054	4822 124 11281	T CAP. 10U 6.3V
C4055	4822 122 33749	C CAP. 0.1U 50V
C4057	4822 126 11257	C CAP. 0.1U 16V
C4501,02	4822 124 23585	E CAP. 47U 4V
C4503,04	4822 124 23242	E CAP. 10U 16V
C4507	4822 126 11761	C CAP. 1000P 50V
C4508	4822 122 33777	C CAP. 470P 50V
C4509	4822 126 12209	C CAP. 0.01U 25V
C4511	4822 124 23238	E CAP. 47U 6.3V
C4513	4822 124 11237	T CAP. 3.3U 16V
C4515	4822 124 11232	T CAP. 47U 4V
C4516	4822 124 11233	T CAP. 22U 6.3V
C4517	4822 124 11289	T CAP. 33U 6.3V
C4518	4822 124 11232	T CAP. 47U 4V
C4519,20	4822 126 11791	C CAP. 5600P 50V
C4521	4822 124 11103	T CAP. 10U 10V
C4523	4822 126 11777	C CAP. 33P 50V
C4524	4822 126 11771	C CAP. 22P 50V
C4525	4822 126 12214	C CAP. 180P 50V
C5001	4822 124 11281	T CAP. 10U 6.3V
C5002,03	4822 126 11763	C CAP. 0.01U 50V
C5004-11	4822 126 11748	C CAP. 0.1U 16V
C5012-15	4822 126 11771	C CAP. 22P 50V
C5016-23	4822 126 10687	C CAP. 1U 16V
C5024	4822 124 11281	T CAP. 10U 6.3V
C5025-27	4822 126 11763	C CAP. 0.01U 50V
C5028	4822 122 33735	C CAP. 0.027U 50V
C5029	4822 126 12218	C CAP. 8200P 50V
C5030,31	4822 126 11763	C CAP. 0.01U 50V
C5032	4822 124 11281	T CAP. 10U 6.3V

Pos.	Parts Code	Description
C5033	4822 126 11763	C CAP. 0.01U 50V
C5034	4822 124 11281	T CAP. 10U 6.3V
C5035	4822 126 11748	C CAP. 0.1U 16V
C5036-39	4822 126 11763	C CAP. 0.01U 50V
C5040-43	4822 126 11793	C CAP. 680P 50V
C5044-47	4822 126 11748	C CAP. 0.1U 16V
C5048-51	4822 126 11763	C CAP. 0.01U 50V
C5052	4822 126 11765	C CAP. 120P 50V
C5053	4822 126 11768	C CAP. 150P 50V
C5054	4822 126 11782	C CAP. 39P 50V
C5055,56	4822 126 11748	C CAP. 0.1U 16V
C5062-65	4822 126 11748	C CAP. 0.1U 16V
C5066	4822 124 11281	T CAP. 10U 6.3V
C5067	4822 126 11763	C CAP. 0.01U 50V
C5072	4822 126 12207	C CAP. 0.012U 16V
C5073	4822 126 12202	C CAP. 0.068U 16V
C5080	4822 124 11281	T CAP. 10U 6.3V
C5081	4822 126 11763	C CAP. 0.01U 50V
C5085	4822 124 11281	T CAP. 10U 6.3V
C6001,02	4822 126 11758	C CAP. 10P 50V
C6003,04	4822 126 11777	C CAP. 33P 50V
C6005	4822 126 11748	C CAP. 0.1U 16V
C6006	4822 124 11233	T CAP. 22U 6.3V
C6007	4822 126 11748	C CAP. 0.1U 16V
C6008	4822 124 11281	T CAP. 10U 6.3V
C6009-13	4822 126 11748	C CAP. 0.1U 16V
C6014	4822 126 11262	C CAP. 2.2U 16V
C6015	4822 126 11748	C CAP. 0.1U 16V
C6016	4822 124 23592	E CAP. 22U 16V
C6017	4822 126 12209	C CAP. 0.01U 25V
C6018	4822 126 11731	C CAP. 1U 16V
C6019,20	4822 126 10687	C CAP. 1U 16V
C6021-24	4822 126 11748	C CAP. 0.1U 16V
C6025	4822 126 11788	C CAP. 56P 50V
C6026	4822 124 11291	T CAP. 47U 10V
C6101	4822 126 11777	C CAP. 33P 50V
C6102	4822 125 50286	TRIMMER
C6104	4822 126 12199	C CAP. 0.47U 16V
C6105	4822 126 11763	C CAP. 0.01U 50V
C6107	4822 126 11777	C CAP. 33P 50V
C6108	4822 125 50286	TRIMMER
C6109	4822 124 23242	E CAP. 10U 16V
C6110	4822 122 33749	C CAP. 0.1U 50V
C6111	4822 126 11755	C CAP. 5P 50V
C6113	4822 126 11748	C CAP. 0.1U 16V
C6116	4822 124 23584	E CAP. 220U 4V
C6117	4822 126 11782	C CAP. 39P 50V
C6119	4822 126 11748	C CAP. 0.1U 16V
C6121	4822 126 11773	C CAP. 2200P 50V
C6201	4822 126 11748	C CAP. 0.1U 16V
C6202	4822 124 11281	T CAP. 10U 6.3V
C6205	4822 126 11762	C CAP. 0.01U 50V
C6206	4822 126 12216	C CAP. 0.022U 50V
C6207	4822 124 80166	E CAP. 10U 16V
C6208	4822 124 11281	T CAP. 10U 6.3V
C6209	4822 126 11789	C CAP. 560P 50V
C6210,11	4822 126 11731	C CAP. 1U 16V
C6212	4822 126 11748	C CAP. 0.1U 16V
C6213	4822 121 43187	CAP. 0.027U 16V
C6214	4822 126 10687	C CAP. 1U 16V
C6215	4822 126 12212	C CAP. 4700P 25V
C6216	4822 126 11748	C CAP. 0.1U 16V
C6217,18	4822 124 11288	T CAP. 15U 4V
C6220	4822 122 33671	C CAP. 0.22U 16V
C8002	4822 126 12221	C CAP. 6P 50V

Pos.	Parts Code	Description
C8003	4822 126 11758	C CAP. 10P 50V
C8004	4822 124 11281	T CAP. 10U 6.3V
C8005	4822 126 11748	C CAP. 0.1U 16V
C8015	4822 126 11748	C CAP. 0.1U 16V
C8016	4822 126 12209	C CAP. 0.01U 25V
C8017	4822 124 11281	T CAP. 10U 6.3V
C8040	4822 126 11775	C CAP. 270P 50V
C8048	4822 126 11781	C CAP. 3300P 50V
C8049	4822 124 11292	T CAP. 4.7U 6.3V
C8062,63	4822 126 12214	C CAP. 180P 50V
C8066	4822 126 11761	C CAP. 1000P 50V
C8071	4822 126 12215	C CAP. 1800P 50V
C8072	4822 126 11748	C CAP. 0.1U 16V
C8074	4822 126 10687	C CAP. 1U 16V
C8076	4822 126 10687	C CAP. 1U 16V
C8101	4822 126 11748	C CAP. 0.1U 16V
C8102	4822 126 11777	C CAP. 33P 50V
C8103	4822 126 11764	C CAP. 12P 50V
C8104	4822 126 11763	C CAP. 0.01U 50V
C8105	4822 126 11785	C CAP. 47P 50V
C8107	4822 122 33788	C CAP. 82P 50V
D3201,02	4822 130 82444	DIODE MA132WK
D3203	4822 130 82732	DIODE MA132K
D3204	4822 130 82445	DIODE MA133
D4002	4822 130 82732	DIODE MA132K
D5001	4822 130 80173	DIODE MA159
D5002	4822 130 82443	DIODE MA132WA
D5003	4822 130 80173	DIODE MA159
D5004	4822 130 82443	DIODE MA132WA
D5005	4822 130 82445	DIODE MA133
D5006-09	4822 130 80732	DIODE MA728
D6001	4822 130 82445	DIODE MA133
D6002	4822 130 82732	DIODE MA132K
D6003	4822 130 82444	DIODE MA132WK
D6005	4822 130 82448	DIODE MA3100
D6007	4822 130 80732	DIODE MA728
D6009	4822 130 80732	DIODE MA728
D6010,11	4822 130 82024	DIODE MA736
D6012	4822 130 82732	DIODE MA132K
D6013	4822 130 80732	DIODE MA728
D6101	4822 130 82732	DIODE MA132K
D6103-05	4822 130 82732	DIODE MA132K
D6110-12	4822 130 82732	DIODE MA132K
D8001	4822 130 82444	DIODE MA132WK
FL4501	4822 157 63952	FILTER
FL4502	4822 157 63953	FILTER
IC3001	4822 209 31427	IC VEFH25B
IC3002	4822 209 30354	IC TL8809FEL
IC3003	4822 209 31412	IC AN3298NSB
IC3005	4822 209 31416	IC BA7062F
IC3801	4822 209 31417	IC CF77544FR
IC3803	4822 209 63535	IC MN12821R
IC4001	4822 209 31415	IC AN3998FAP
IC4501	4822 209 31429	IC VEFH27B
IC5001	4822 209 31413	IC AN3350FHP
IC6001	4822 209 31418	IC MN6755242V4C
IC6002	4822 209 31419	IC RH5RE38AA
IC6003	4822 209 63535	IC MN12821R
IC6004	4822 209 63542	IC M54543AFP
IC6005	4822 209 61747	IC TC4S66F
IC6006,07	4822 209 63529	IC LM393DB

Pos.	Parts Code	Description
IC6008,09	4822 209 31422	IC TC7W00F
IC6010,11	4822 209 63557	IC TC7S08F
IC6012	4822 209 63529	IC LM393DB
IC6013	4822 209 73822	IC S81250HGRD
IC6101	4822 209 31421	IC TC4W53F
IC6102	4822 209 31423	IC TC7W04F
IC6103	4822 209 31426	IC UPD17401G534
IC6104	4822 209 30353	IC S8420BF
IC8001	4822 209 31428	IC VEFH26B
IC8002	4822 209 31424	IC TL8833FTP1
L3001,02	4822 157 62333	COIL 100UH
L3003	4822 157 63481	COIL 56UH
L3004	4822 157 63957	COIL 15UH
L3005	4822 157 63926	COIL 120UH
L3006	4822 157 63959	COIL 3.9UH
L3007	4822 157 63957	COIL 15UH
L3009	4822 157 62055	COIL 15UH
L3010	4822 157 63962	COIL 47UH
L3011	4822 157 63956	COIL 12UH
L3012	4822 157 63955	COIL 10UH
L3015	4822 157 63481	COIL 56UH
L3017	4822 157 62975	COIL 33UH
L3018	4822 157 62055	COIL 15UH
L3019	4822 157 62333	COIL 100UH
L3021	4822 157 62975	COIL 33UH
L3024	4822 157 62333	COIL 100UH
L3025	4822 157 63963	COIL 6.8UH
L3026	4822 157 63955	COIL 10UH
L3801	4822 157 63957	COIL 15UH
L4001	4822 157 63951	COIL
L4003	4822 157 62333	COIL 100UH
L4502,03	4822 157 62333	COIL 100UH
L4504	4822 157 63481	COIL 56UH
L5001-03	4822 157 62055	COIL 15UH
L5004	4822 157 62333	COIL 100UH
L5005	4822 157 52997	COIL 12UH
L5006,07	4822 157 62055	COIL 15UH
L5010	4822 157 62055	COIL 15UH
L6002	4822 157 62967	COIL 10UH
L6101	4822 157 63481	COIL 56UH
L8001	4822 157 63958	COIL 27UH
L8002,03	4822 157 63955	COIL 10UH
L8004	4822 157 62055	COIL 15UH
L8006	4822 157 62975	COIL 33UH
L8007	4822 157 63957	COIL 15UH
L8012	4822 157 62055	COIL 15UH
L8013	4822 157 63961	COIL 39UH
L8014	4822 157 63954	COIL 150UH
Q3001	4822 130 42664	TR 2SB970X
Q3003	4822 130 62582	TR 2SC4627
Q3004-06	4822 130 62586	TR 2SD2216
Q3008-10	4822 130 62582	TR 2SC4627
Q3011	4822 130 62579	TR 2SB1462
Q3012	4822 130 62586	TR 2SD2216
Q3014	4822 130 62579	TR 2SB1462
Q3203	4822 130 62579	TR 2SB1462
Q3801	4822 130 62586	TR 2SD2216
Q3802,03	4822 130 62579	TR 2SB1462
Q3804	4822 130 42664	TR 2SB970X
Q4001	4822 130 62586	TR 2SD2216
Q4002	4822 130 63063	TR 2SB1463-R
Q4003	4822 130 63062	TR XP6501
Q4005	4822 130 61076	TR 2SB1219-R
Q4006	4822 130 63064	TR 2SD602-R
Q4010	4822 130 62586	TR 2SD2216
Q4011	4822 130 62579	TR 2SB1462
Q4012	4822 130 63061	TR XP6401
Q4013-15	4822 130 62579	TR 2SB1462
Q4016	4822 130 62586	TR 2SD2216
Q4017	4822 130 62586	TR 2SD2216-R
Q4018	4822 130 62577	TR XP4601
Q4019	4822 130 62586	TR 2SD2216-R
Q5001,02	4822 130 63057	TR XN4506
Q5003	4822 130 42664	TR 2SB970X
Q5004,05	4822 130 61074	TR 2SA812
Q5006,07	4822 130 62225	TR XN4504
Q5008,09	4822 130 42668	TR 2SD1328
Q5010	4822 130 42664	TR 2SB970X
Q6001	4822 130 62586	TR 2SD2216
Q6101	4822 130 62809	TR XP1501
Q6105	4822 130 62579	TR 2SB1462
Q6106	4822 130 60345	TR 2SK198
Q6201	4822 130 62579	TR 2SB1462
Q8001	4822 130 62586	TR 2SD2216
Q8002	4822 130 62582	TR 2SC4627
Q8009	4822 130 62579	TR 2SB1462
QR3001	4822 130 62564	TR UN9212
QR3002	4822 130 62565	TR UN9213
QR3004	4822 130 62563	TR UN9211
QR3005	4822 130 62565	TR UN9213
QR3006	4822 130 62564	TR UN9212
QR3009,10	4822 130 62564	TR UN9212
QR3013,14	4822 130 62564	TR UN9212
QR3016	4822 130 62564	TR UN9212
QR3017	4822 130 62565	TR UN9213
QR3019	4822 130 62564	TR UN9212
QR3202,03	4822 130 62563	TR UN9211
QR3204,05	4822 130 62564	TR UN9212
QR3801	4822 130 62565	TR UN9213
QR3802,03	4822 130 63058	TR XP1211
QR4001	4822 130 62559	TR UN9113
QR4003	4822 130 62565	TR UN9213
QR4004	4822 130 62568	TR UN9217
QR4005	4822 130 62558	TR UN9112
QR4006	4822 130 62562	TR UN9210
QR5001	4822 130 62565	TR UN9213
QR5002,03	4822 130 62564	TR UN9212
QR5004	4822 130 63059	TR XP1213
QR5010	4822 130 62565	TR UN9213
QR6001	4822 130 62558	TR UN9112
QR6002	4822 130 63056	TR XN4130X
QR6003	4822 130 61065	TR XN1213
QR6005	4822 130 62562	TR UN9210
QR6006	4822 130 63054	TR FN3L4Z
QR6010	4822 130 62831	TR UN9115
QR6013	4822 130 62565	TR UN9213
QR6014	4822 130 62564	TR UN9212
QR6015	4822 130 63055	TR UN2130X
QR6017	4822 130 62829	TR UN9111
QR6018	4822 130 62565	TR UN9213
QR6019	4822 130 62567	TR UN9215
QR8101	4822 130 62564	TR UN9212
R3001	4822 116 83823	RES. 2.2K 1/32W
R3002	4822 116 83815	RES. 1.5K 1/32W
R3003,04	4822 116 82574	RES. 1K
R3005	4822 116 82576	RES. 470
R3006	4822 116 82575	RES. 3.3K

Pos.	Parts Code	Description
R3007	4822 116 82846	RES. 1.5K
R3008	4822 116 82575	RES. 3.3K
R3010	4822 116 83815	RES. 1.5K 1/32W
R3011	4822 116 83846	RES. 6.8K 1/32W
R3012	4822 116 83823	RES. 2.2K 1/32W
R3013	4822 116 83834	RES. 3.9K 1/32W
R3014,15	4822 116 83806	RES. 1K 1/32W
R3017	4822 116 81078	RES. 330
R3018	4822 116 81052	RES. 1.2K
R3021	4822 116 83806	RES. 1K 1/32W
R3022	4822 116 83818	RES. 1.8K 1/32W
R3023	4822 116 83838	RES. 4.7K 1/32W
R3024	4822 116 83849	RES. 820 1/32W
R3025	4822 116 83806	RES. 1K 1/32W
R3026	4822 116 83827	RES. 2.7K 1/32W
R3028	4822 116 83845	RES. 680 1/32W
R3029,30	4822 116 83824	RES. 22K 1/32W
R3031	4822 116 81067	RES. 220
R3032	4822 116 81061	RES. 180
R3033	4822 116 83842	RES. 560 1/32W
R3042	4822 116 83845	RES. 680 1/32W
R3043	4822 116 83807	RES. 10K 1/32W
R3045	4822 116 83834	RES. 3.9K 1/32W
R3049	4822 116 81095	RES. 560
R3051	4822 116 83807	RES. 10K 1/32W
R3052	4822 116 83841	RES. 470K 1/32W
R3053	4822 116 83814	RES. 130K 1/32W
R3054	4822 116 83806	RES. 1K 1/32W
R3055	4822 116 83823	RES. 2.2K 1/32W
R3058	4822 116 81089	RES. 470
R3059	4822 116 81068	RES. 2.2K
R3060-62	4822 116 82344	RES. 68
R3064	4822 116 83815	RES. 1.5K 1/32W
R3068,69	4822 116 83807	RES. 10K 1/32W
R3070	4822 116 81095	RES. 560
R3071	4822 116 83807	RES. 10K 1/32W
R3072	4822 116 81095	RES. 560
R3073	4822 116 83845	RES. 680 1/32W
R3074,75	4822 116 83806	RES. 1K 1/32W
R3076	4822 116 81089	RES. 470
R3077-79	4822 116 83806	RES. 1K 1/32W
R3080	4822 116 83815	RES. 1.5K 1/32W
R3089	4822 116 83851	RES. 8.2K 1/32W
R3090	4822 116 83807	RES. 10K 1/32W
R3091	4822 116 83831	RES. 3.3K 1/32W
R3097	4822 116 83825	RES. 220K 1/32W
R3098	4822 116 83809	RES. 1M 1/32W
R3104	4822 116 83807	RES. 10K 1/32W
R3111	4822 116 83832	RES. 33K 1/32W
R3113	4822 116 83806	RES. 1K 1/32W
R3207	4822 116 83843	RES. 5.6K 1/32W
R3208	4822 116 83824	RES. 22K 1/32W
R3209	4822 116 83843	RES. 5.6K 1/32W
R3210,11	4822 116 83817	RES. 150K 1/32W
R3212	4822 116 83839	RES. 47K 1/32W
R3213	4822 116 83833	RES. 330K 1/32W
R3214,15	4822 116 83807	RES. 10K 1/32W
R3216	4822 116 83806	RES. 1K 1/32W
R3230	4822 116 83841	RES. 470K 1/32W
R3231	4822 116 83819	RES. 18K 1/32W
R3235	4822 116 83806	RES. 1K 1/32W
R3240	4822 051 20821	RES. 820 1/10W
R3601	4822 116 83273	RES. 4.7 1/10W
R3801,02	4822 116 83824	RES. 22K 1/32W
R3803	4822 116 83822	RES. 220 1/32W

Pos.	Parts Code	Description
R3804	4822 116 83838	RES. 4.7K 1/32W
R3805	4822 116 83846	RES. 6.8K 1/32W
R3806	4822 116 83805	RES. 100 1/32W
R3807	4822 116 83845	RES. 680 1/32W
R3809	4822 116 83838	RES. 4.7K 1/32W
R3810,11	4822 116 83805	RES. 100 1/32W
R3812	4822 116 83809	RES. 1M 1/32W
R3813	4822 116 83816	RES. 15K 1/32W
R3814	4822 116 83808	RES. 100K 1/32W
R3815	4822 116 83828	RES. 27K 1/32W
R3816	4822 116 83837	RES. 470 1/32W
R3818,19	4822 116 83806	RES. 1K 1/32W
R3820,21	4822 116 81091	RES. 4.7K
R3822-25	4822 116 83843	RES. 5.6K 1/32W
R4001	4822 116 83848	RES. 680K 1/32W
R4002	4822 116 83808	RES. 100K 1/32W
R4003	4822 116 83836	RES. 390K 1/32W
R4004	4822 116 83806	RES. 1K 1/32W
R4007	4822 116 83824	RES. 22K 1/32W
R4009	4822 116 81101	RES. 6.8K
R4012	4822 116 81044	RES. 10
R4013	4822 116 81095	RES. 560
R4014	4822 116 81086	RES. 39K
R4015	4822 116 81044	RES. 10
R4016,17	4822 116 83838	RES. 4.7K 1/32W
R4018	4822 116 83806	RES. 1K 1/32W
R4019	4822 116 83816	RES. 15K 1/32W
R4020	4822 116 81089	RES. 470
R4021	4822 116 81082	RES. 330K
R4022	4822 116 81096	RES. 5.6K
R4023	4822 116 81085	RES. 3.9K
R4027	4822 116 83806	RES. 1K 1/32W
R4028	4822 116 83831	RES. 3.3K 1/32W
R4029	4822 116 83811	RES. 1.2K 1/32W
R4030	4822 116 83827	RES. 2.7K 1/32W
R4031	4822 116 81083	RES. 39
R4034	4822 116 81045	RES. 100
R4035	4822 116 81091	RES. 4.7K
R4036	4822 116 81044	RES. 10
R4037,38	4822 116 81053	RES. 12K
R4039	4822 116 81056	RES. 1.5K
R4041,42	4822 116 81053	RES. 12K
R4043	4822 116 83819	RES. 18K 1/32W
R4044	4822 116 83851	RES. 8.2K 1/32W
R4045	4822 116 83819	RES. 18K 1/32W
R4046	4822 116 83838	RES. 4.7K 1/32W
R4047	4822 116 83834	RES. 3.9K 1/32W
R4048	4822 116 83819	RES. 18K 1/32W
R4049,50	4822 116 81045	RES. 100
R4051	4822 116 81061	RES. 180
R4052,53	4822 116 83807	RES. 10K 1/32W
R4055	4822 116 83847	RES. 68K 1/32W
R4056	4822 116 83839	RES. 47K 1/32W
R4057	4822 116 81046	RES. 1K
R4058	4822 116 81107	RES. 820
R4059	4822 116 81068	RES. 2.2K
R4060	4822 116 83838	RES. 4.7K 1/32W
R4061	4822 116 83831	RES. 3.3K 1/32W
R4062	4822 116 83817	RES. 150K 1/32W
R4501,02	4822 116 83806	RES. 1K 1/32W
R4503	4822 116 81046	RES. 1K
R4504	4822 116 83845	RES. 680 1/32W
R4506	4822 116 83845	RES. 680 1/32W
R4511	4822 116 83832	RES. 33K 1/32W
R4513	4822 116 83832	RES. 33K 1/32W

Pos.	Parts Code	Description
R4515	4822 116 83806	RES. 1K 1/32W
R4516	4822 116 83839	RES. 47K 1/32W
R4517,18	4822 116 83806	RES. 1K 1/32W
R5001	4822 116 81079	RES. 3.3K
R5002	4822 116 81068	RES. 2.2K
R5003	4822 116 82276	RES. 8.2K
R5004-07	4822 116 81089	RES. 470
R5008-11	4822 116 81107	RES. 820
R5012,13	4822 116 81091	RES. 4.7K
R5014	4822 116 81107	RES. 820
R5015	4822 116 81091	RES. 4.7K
R5016-19	4822 116 81046	RES. 1K
R5020-23	4822 116 81084	RES. 390
R5024	4822 116 81762	RES. 4.7
R5025	4822 116 81084	RES. 390
R5026	4822 116 81061	RES. 180
R5027	4822 116 82276	RES. 8.2K
R5028	4822 116 81063	RES. 18K
R5029,30	4822 116 81044	RES. 10
R5032	4822 116 81064	RES. 180K
R5033,34	4822 116 83807	RES. 10K 1/32W
R5035	4822 116 81084	RES. 390
R5036	4822 116 83831	RES. 3.3K 1/32W
R5050-53	4822 116 83836	RES. 390K 1/32W
R5054-56	4822 116 83838	RES. 4.7K 1/32W
R6001-09	4822 116 83839	RES. 47K 1/32W
R6010	4822 051 10228	RES. 2.2 1/8W
R6011	4822 116 83839	RES. 47K 1/32W
R6012-14	4822 116 83806	RES. 1K 1/32W
R6015	4822 116 83808	RES. 100K 1/32W
R6016-20	4822 116 83806	RES. 1K 1/32W
R6021	4822 116 83839	RES. 47K 1/32W
R6022-28	4822 116 83806	RES. 1K 1/32W
R6029	4822 116 83844	RES. 56K 1/32W
R6030	4822 116 83832	RES. 33K 1/32W
R6031	4822 116 83839	RES. 47K 1/32W
R6032	4822 116 83846	RES. 6.8K 1/32W
R6033,34	4822 116 83839	RES. 47K 1/32W
R6035	4822 116 83828	RES. 27K 1/32W
R6036	4822 116 83824	RES. 22K 1/32W
R6037	4822 116 83825	RES. 220K 1/32W
R6038	4822 116 83824	RES. 22K 1/32W
R6039	4822 051 10129	RES. 12 1/8W
R6040	4822 116 83807	RES. 10K 1/32W
R6041	4822 051 10221	RES. 220 1/8W
R6042	4822 051 20331	RES. 330 1/10W
R6043	4822 116 83834	RES. 3.9K 1/32W
R6043	4822 116 83834	RES. 3.9K 1/32W
R6044	4822 116 83815	RES. 1.5K 1/32W
R6045	4822 116 83838	RES. 4.7K 1/32W
R6046	4822 116 83839	RES. 47K 1/32W
R6047	4822 116 83836	RES. 390K 1/32W
R6048	4822 116 83817	RES. 150K 1/32W
R6050	4822 116 83807	RES. 10K 1/32W
R6051	4822 116 83839	RES. 47K 1/32W
R6052	4822 116 83824	RES. 22K 1/32W
R6053	4822 116 83835	RES. 39K 1/32W
R6054	4822 116 83833	RES. 330K 1/32W
R6055	4822 116 83301	RES. 820 1/8W
R6057	4822 116 83807	RES. 10K 1/32W
R6058,59	4822 116 83839	RES. 47K 1/32W
R6060-62	4822 116 83806	RES. 1K 1/32W
R6063	4822 116 83834	RES. 3.9K 1/32W
R6064,65	4822 116 83839	RES. 47K 1/32W
R6069	4822 116 83807	RES. 10K 1/32W

Pos.	Parts Code	Description
R6070	4822 116 83806	RES. 1K 1/32W
R6072-74	4822 116 83806	RES. 1K 1/32W
R6075	4822 116 83843	RES. 5.6K 1/32W
R6076	4822 116 83825	RES. 220K 1/32W
R6077	4822 116 83824	RES. 22K 1/32W
R6079	4822 116 83838	RES. 4.7K 1/32W
R6080	4822 116 83807	RES. 10K 1/32W
R6081	4822 116 83809	RES. 1M 1/32W
R6082	4822 116 83807	RES. 10K 1/32W
R6083-85	4822 116 83839	RES. 47K 1/32W
R6090	4822 116 83835	RES. 39K 1/32W
R6092	4822 116 83835	RES. 39K 1/32W
R6101	4822 116 83839	RES. 47K 1/32W
R6102-05	4822 116 81046	RES. 1K
R6106-08	4822 111 92098	RES.
R6109	4822 116 83806	RES. 1K 1/32W
R6110	4822 116 83816	RES. 15K 1/32W
R6111	4822 116 83808	RES. 100K 1/32W
R6116-19	4822 116 81045	RES. 100
R6120	4822 116 83809	RES. 1M 1/32W
R6124	4822 116 81045	RES. 100
R6127	4822 116 83839	RES. 47K 1/32W
R6129	4822 116 83832	RES. 33K 1/32W
R6130	4822 116 83808	RES. 100K 1/32W
R6131	4822 116 83809	RES. 1M 1/32W
R6138	4822 116 83847	RES. 68K 1/32W
R6139	4822 116 83839	RES. 47K 1/32W
R6142	4822 116 83807	RES. 10K 1/32W
R6146,47	4822 116 83808	RES. 100K 1/32W
R6150,51	4822 116 83843	RES. 5.6K 1/32W
R6152	4822 116 83823	RES. 2.2K 1/32W
R6153	4822 116 83843	RES. 5.6K 1/32W
R6154	4822 111 92097	RES.
R6156	4822 116 83816	RES. 15K 1/32W
R6201,02	4822 116 83808	RES. 100K 1/32W
R6203	4822 116 83846	RES. 6.8K 1/32W
R6204	4822 116 83807	RES. 10K 1/32W
R6205	4822 116 83823	RES. 2.2K 1/32W
R6206	4822 116 81061	RES. 180
R6207	4822 116 83823	RES. 2.2K 1/32W
R6208	4822 116 83824	RES. 22K 1/32W
R6209	4822 116 83839	RES. 47K 1/32W
R6212,13	4822 116 83808	RES. 100K 1/32W
R6216	4822 116 83808	RES. 100K 1/32W
R6217	4822 051 10228	RES. 2.2 1/8W
R6219	4822 116 83825	RES. 220K 1/32W
R6220	4822 116 83823	RES. 2.2K 1/32W
R6221	4822 116 83824	RES. 22K 1/32W
R6231	4822 116 83835	RES. 39K 1/32W
R6251-53	4822 116 83807	RES. 10K 1/32W
R8003	4822 116 83827	RES. 2.7K 1/32W
R8014	4822 116 83806	RES. 1K 1/32W
R8016	4822 116 83818	RES. 1.8K 1/32W
R8017	4822 116 83845	RES. 680 1/32W
R8044	4822 116 83815	RES. 1.5K 1/32W
R8045	4822 116 83824	RES. 22K 1/32W
R8054	4822 116 83838	RES. 4.7K 1/32W
R8057,58	4822 116 83841	RES. 470K 1/32W
R8062	4822 116 83815	RES. 1.5K 1/32W
R8065	4822 116 83807	RES. 10K 1/32W
R8066	4822 116 83834	RES. 3.9K 1/32W
R8067	4822 116 83806	RES. 1K 1/32W
R8070	4822 116 83845	RES. 680 1/32W
R8071,72	4822 116 83806	RES. 1K 1/32W
R8075	4822 116 81055	RES. 150

Pos.	Parts Code	Description
R8111	4822 116 83838	RES. 4.7K 1/32W
R8114	4822 116 81046	RES. 1K
T4001	4822 148 81259	TRANSFORMER
VR3001	4822 101 30776	V RES. 1K
VR3004	4822 101 30784	V RES. 5K
VR3005	4822 101 30776	V RES. 1K
VR3006	4822 101 30777	V RES. 10K
VR3007	4822 101 30785	V RES. 50K
VR3008	4822 101 30783	V RES. 500
VR3801	4822 101 30776	V RES. 1K
VR4001	4822 101 30781	V RES. 20K
VR4002	4822 101 30785	V RES. 50K
VR4501,02	4822 101 30779	V RES. 2K
VR6001	4822 101 30777	V RES. 10K
VR6201	4822 101 30778	V RES. 100K
VR8001	4822 101 30779	V RES. 2K
X3801	4822 242 81226	CRYSTAL OSCILLATOR
X6001	4822 242 81227	CRYSTAL OSCILLATOR
X6002	4822 242 73912	CRYSTAL OSCILLATOR
X6101	4822 242 81228	CRYSTAL OSCILLATOR
X6102	4822 242 73912	CRYSTAL OSCILLATOR
X8001	4822 242 73924	CRYSTAL OSCILLATOR
POWER C.B.A.		
C1001	4822 126 12198	C CAP. 3.3U 16V
C1002	4822 124 80167	E CAP. 47U 16V
C1003	4822 126 12172	CAP.
C1004	4822 126 11779	C CAP. 330P 50V
C1005	4822 124 11237	T CAP. 3.3U 16V
C1006	4822 122 33725	C CAP. 1U 16V
C1007	4822 124 23237	C CAP. 22U 6.3V
C1008	4822 126 12172	CAP.
C1009	4822 126 11779	C CAP. 330P 50V
C1010	4822 124 11237	T CAP. 3.3U 16V
C1011	4822 126 11262	C CAP. 2.2U 16V
C1012	4822 126 11761	C CAP. 1000P 50V
C1013	4822 126 12194	CAP.
C1014	4822 126 11789	C CAP. 560P 50V
C1015	4822 124 23909	E CAP. 47U 10V
C1017	4822 122 33725	C CAP. 1U 16V
C1019	4822 122 33726	C CAP. 0.47U 16V
C1020	4822 122 33725	C CAP. 1U 16V
C1022	4822 121 43234	C CAP. 0.1U 50V
C1024	4822 122 33726	C CAP. 0.47U 16V
C1025	4822 126 11257	C CAP. 0.1U 16V
C1026	4822 124 23243	E CAP. 1U 50V
C1027	4822 126 11759	C CAP. 100P 50V
C1028	4822 124 80169	E CAP. 0.47U 50V
C1029	4822 126 11786	C CAP. 470P 50V
C1030	4822 126 12218	C CAP. 8200P 50V
C1031	4822 126 11786	C CAP. 470P 50V
C1032	4822 126 12218	C CAP. 8200P 50V
C1033-35	4822 126 11761	C CAP. 1000P 50V
C1036	4822 126 11786	C CAP. 470P 50V
C1037	4822 126 12218	C CAP. 8200P 50V
C1041	4822 122 33725	C CAP. 1U 16V
C1042	4822 124 11237	T CAP. 3.3U 16V
C1043	4822 122 33725	C CAP. 1U 16V
C1045	4822 124 80167	E CAP. 47U 16V
C1061	4822 126 11787	C CAP. 4700P 50V
C1062	4822 124 80167	E CAP. 47U 16V
C1063	4822 126 11787	C CAP. 4700P 50V
C1064	4822 124 80167	E CAP. 47U 16V
C1065,66	4822 122 33725	C CAP. 1U 16V

Pos.	Parts Code	Description
C1098	4822 126 11762	C CAP. 0.01U 50V
C1104,05	4822 122 33725	C CAP. 1U 16V
D1001	4822 130 82025	DIODE MA738
D1002	4822 130 82024	DIODE MA736
D1003	4822 130 82443	DIODE MA132WA
D1004	4822 130 82024	DIODE MA736
D1005	4822 130 82452	DIODE MA720
D1006,07	4822 130 82732	DIODE MA132K
D1007	4822 130 82732	DIODE MA132K
D1008	4822 130 80732	DIODE MA728
D1009	4822 130 82813	DIODE RD10M
D1010,11	4822 130 83043	DIODE RD13M
D1012	4822 130 82445	DIODE MA133
D1061,62	4822 130 82452	DIODE MA720
D1063,64	4822 130 80732	DIODE MA728
D1106	4822 130 82732	DIODE MA132K
D6501	4822 130 82443	DIODE MA132WA
D6502	4822 130 83041	DIODE CL150UR
D6503	4822 130 80732	DIODE MA728
IC1001	4822 209 31395	IC BA9703K
IC1101	4822 209 31409	IC RH5RA50AAT1
L1001	4822 157 63945	COIL
L1002	4822 148 81261	TRANSFORMER
L1003	4822 157 63945	COIL
L1004	4822 157 63942	COIL 10UH
L1006	4822 157 63471	COIL 47UH
L1007	4822 157 63944	COIL
L1008	4822 157 63945	COIL
L1009	4822 157 63942	COIL 10UH
L1010,11	4822 157 63467	COIL 100UH
L1012	4822 157 63942	COIL 10UH
L1061,62	4822 148 81262	TRANSFORMER
L1101	4822 157 63467	COIL 100UH
* L1102	4822 157 63947	COIL
* L1103	4822 157 63947	COIL
Q1001-03	4822 130 62345	TR 2SB1073
Q1004	4822 130 62585	TR 2SD2210
Q1005	4822 130 62345	TR 2SB1073
Q1006	4822 130 42664	TR 2SB970X
Q1061,62	4822 130 62345	TR 2SB1073
Q1101	4822 130 42664	TR 2SB970X
Q1102	4822 130 62579	TR 2SB1462
Q6501	4822 130 62586	TR 2SD2216-R
QR1002	4822 130 62566	TR UN9214
QR1004	4822 130 62566	TR UN9214
QR1005	4822 130 63051	TR UN9114
QR1006	4822 130 62809	TR XP1501
QR1061	4822 130 62831	TR UN9115
QR1101	4822 130 62565	TR UN9213
QR6502	4822 130 62564	TR UN9212
R1001	4822 051 20682	RES. 6.8K 1/10W
R1002	4822 116 83785	RES. 2.2K 1/10W
R1003	4822 116 81046	RES. 1K
R1004	4822 116 81084	RES. 390
R1005	4822 116 83787	RES. 5.6K 1/10W
R1006	4822 116 83786	RES. 2.7K 1/10W
R1007	4822 116 83295	RES. 33 1/8W
R1008	4822 116 83783	RES. 10K 1/10W
R1009	4822 116 83784	RES. 1.6K 1/10W
R1012	4822 116 83782	RES. 18K

Pos.	Parts Code	Description
R1013	4822 116 82495	RES. 39K
R1014,15	4822 116 83781	RES. 1.8K
R1016	4822 116 83306	RES. 15K 1/10W
R1017	4822 116 81046	RES. 1K
R1018	4822 116 81055	RES. 150
R1019	4822 116 81046	RES. 1K
R1020	4822 116 81055	RES. 150
R1021	4822 116 81077	RES. 33
R1022	4822 116 81094	RES. 56
R1023	4822 116 81074	RES. 2.7K
R1024	4822 116 81088	RES. 47
R1025,26	4822 116 81046	RES. 1K
R1027	4822 116 81067	RES. 220
R1029	4822 116 81047	RES. 10K
R1030	4822 116 81063	RES. 18K
R1031	4822 116 81081	RES. 33K
R1032	4822 116 81047	RES. 10K
R1033	4822 116 81046	RES. 1K
R1034	4822 116 81077	RES. 33
R1035	4822 116 81088	RES. 47
R1061,62	4822 051 20391	RES. 390 1/10W
R1063	4822 116 81047	RES. 10K
R1064,65	4822 116 81052	RES. 1.2K
R1065	4822 116 81052	RES. 1.2K
R1101	4822 116 81047	RES. 10K
R1102	4822 116 81085	RES. 3.9K
R1103	4822 116 81068	RES. 2.2K
R1104	4822 116 81047	RES. 10K
R1115	4822 113 90239	RES.
R6501	4822 116 81048	RES. 100K
R6502	4822 116 81097	RES. 56K
R6504	4822 116 81046	RES. 1K
S6501	4822 277 21612	SWITCH
S6502	4822 276 13271	SWITCH
T1001	4822 148 81263	TRANSFORMER
VR1001	4822 100 30095	V RES. 500
VR1002	4822 100 30079	V RES. 1K
VR1003	4822 100 30091	V RES. 220

SUB OPERATION C.B.A.

D6701-03	4822 130 82443	DIODE MA132WA
D6704	4822 130 82732	DIODE MA132K
D6705	4822 130 82443	DIODE MA132WA
D6706	4822 130 82732	DIODE MA132K
D6707	4822 130 82443	DIODE MA132WA

DRIVE C.B.A.

C2001	4822 126 12213	C CAP. 1500P 50V
C2002	4822 126 11259	C CAP. 1U 16V
C2003	4822 124 11281	T CAP. 10U 6.3V
C2006	4822 124 11281	T CAP. 10U 6.3V
C2007	4822 126 11731	C CAP. 1U 16V
C2008	4822 126 11748	C CAP. 0.1U 16V
C2009,10	4822 126 11257	C CAP. 0.1U 16V
C2011,12	4822 126 11789	C CAP. 560P 50V
C2013	4822 122 33736	C CAP. 0.047U 25V
C2014	4822 124 11105	T CAP. 4.7U 10V
C2015-18	4822 126 11257	C CAP. 0.1U 16V
C2019	4822 124 11281	T CAP. 10U 6.3V
C2020,21	4822 122 33736	C CAP. 0.047U 25V
C2022-24	4822 126 11763	C CAP. 0.01U 50V
C2025-27	4822 126 11748	C CAP. 0.1U 16V

Pos.	Parts Code	Description
C2028	4822 124 11281	T CAP. 10U 6.3V
C2029	4822 126 11785	C CAP. 47P 50V
C2030	4822 126 11257	C CAP. 0.1U 16V
C2032	4822 124 11281	T CAP. 10U 6.3V
C2033	4822 122 33731	C CAP. 0.1U 25V
C2034	4822 126 11257	C CAP. 0.1U 16V
C2035	4822 124 11281	T CAP. 10U 6.3V
C2036	4822 126 10687	C CAP. 1U 16V
C2037	4822 126 11748	C CAP. 0.1U 16V
C2038	4822 126 11763	C CAP. 0.01U 50V
C2039	4822 126 11762	C CAP. 0.01U 50V
C2042	4822 126 11781	C CAP. 3300P 50V
C2044	4822 126 12211	C CAP. 0.022U 25V
C2047	4822 126 11763	C CAP. 0.01U 50V
C2049,50	4822 126 11761	C CAP. 1000P 50V
D2001	4822 130 80527	DIODE MA143
IC2001	4822 209 31414	IC AN3893FHP
IC2002	4822 209 31425	IC UN224
IC2003	4822 209 63522	IC AN3890FBS
IC2004	4822 209 31425	IC UN224
IC2005	4822 209 73819	IC RC4558M
QR2001	4822 130 83012	TR ON2170-LM
QR2002	4822 111 91942	TR UN5210
QR2003	4822 130 62555	TR UN5111
QR2004	4822 130 63049	TR UN5216
QR2005	4822 130 61061	TR UN5215
QR2006	4822 130 62556	TR UN5115
QR2007	4822 130 61061	TR UN5215
R2001	4822 116 81058	RES. 150K
R2002	4822 116 81068	RES. 2.2K
R2003	4822 116 81079	RES. 3.3K
R2004	4822 116 81098	RES. 560K
R2005	4822 116 81069	RES. 22K
R2006	4822 116 83291	RES. 0.33 1/8W
R2007	4822 116 83789	RES. 0.47 1/8W
R2008-10	4822 116 81101	RES. 6.8K
R2011	4822 116 81095	RES. 560
R2012	4822 116 81046	RES. 1K
R2013	4822 116 83291	RES. 0.33 1/8W
R2014	4822 051 10338	RES. 3.3 1/8W
R2015	4822 116 81068	RES. 2.2K
R2016	4822 116 81097	RES. 56K
R2017	4822 051 30754	RES. 750K
R2019,20	4822 116 81089	RES. 470
R2021	4822 051 20101	RES. 100 1/10W
R2022	4822 116 81046	RES. 1K
R2023	4822 116 81058	RES. 150K
R2024	4822 116 81046	RES. 1K
R2025	4822 116 81081	RES. 33K
R2026	4822 116 81092	RES. 47K
R2030,31	4822 116 81069	RES. 22K
R2032	4822 051 20271	RES. 270 1/10W
R2033	4822 116 81046	RES. 1K
R2034	4822 116 81047	RES. 10K
R2037	4822 116 81047	RES. 10K
R2042,43	4822 116 81092	RES. 47K
R2049	4822 116 81047	RES. 10K
R2050	4822 116 81099	RES. 680
R2051	4822 116 81047	RES. 10K
R2052	4822 116 81074	RES. 2.7K
R2053	4822 116 81075	RES. 27K
R2054	4822 116 81081	RES. 33K
R2055,56	4822 116 81046	RES. 1K
R2057	4822 116 81091	RES. 4.7K
R2058	4822 116 81048	RES. 100K

Pos.	Parts Code	Description
R1013	4822 116 82495	RES. 39K
R1014,15	4822 116 83781	RES. 1.8K
R1016	4822 116 83306	RES. 15K 1/10W
R1017	4822 116 81046	RES. 1K
R1018	4822 116 81055	RES. 150
R1019	4822 116 81046	RES. 1K
R1020	4822 116 81055	RES. 150
R1021	4822 116 81077	RES. 33
R1022	4822 116 81094	RES. 56
R1023	4822 116 81074	RES. 2.7K
R1024	4822 116 81088	RES. 47
R1025,26	4822 116 81046	RES. 1K
R1027	4822 116 81067	RES. 220
R1029	4822 116 81047	RES. 10K
R1030	4822 116 81063	RES. 18K
R1031	4822 116 81081	RES. 33K
R1032	4822 116 81047	RES. 10K
R1033	4822 116 81046	RES. 1K
R1034	4822 116 81077	RES. 33
R1035	4822 116 81088	RES. 47
R1061,62	4822 051 20391	RES. 390 1/10W
R1063	4822 116 81047	RES. 10K
R1064,65	4822 116 81052	RES. 1.2K
R1065	4822 116 81052	RES. 1.2K
R1101	4822 116 81047	RES. 10K
R1102	4822 116 81085	RES. 3.9K
R1103	4822 116 81068	RES. 2.2K
R1104	4822 116 81047	RES. 10K
R1115	4822 113 90239	RES.
R6501	4822 116 81048	RES. 100K
R6502	4822 116 81097	RES. 56K
R6504	4822 116 81046	RES. 1K
S6501	4822 277 21612	SWITCH
S6502	4822 276 13271	SWITCH
T1001	4822 148 81263	TRANSFORMER
VR1001	4822 100 30095	V RES. 500
VR1002	4822 100 30079	V RES. 1K
VR1003	4822 100 30091	V RES. 220

SUB OPERATION C.B.A.

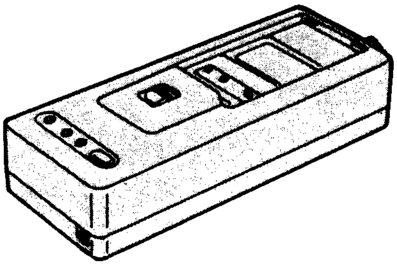
Pos.	Parts Code	Description
D6701-03	4822 130 82443	DIODE MA132WA
D6704	4822 130 82732	DIODE MA132K
D6705	4822 130 82443	DIODE MA132WA
D6706	4822 130 82732	DIODE MA132K
D6707	4822 130 82443	DIODE MA132WA

DRIVE C.B.A.

Pos.	Parts Code	Description
C2001	4822 126 12213	C CAP. 1500P 50V
C2002	4822 126 11259	C CAP. 1U 16V
C2003	4822 124 11281	T CAP. 10U 6.3V
C2006	4822 124 11281	T CAP. 10U 6.3V
C2007	4822 126 11731	C CAP. 1U 16V
C2008	4822 126 11748	C CAP. 0.1U 16V
C2009,10	4822 126 11257	C CAP. 0.1U 16V
C2011,12	4822 126 11789	C CAP. 560P 50V
C2013	4822 122 33736	C CAP. 0.047U 25V
C2014	4822 124 11105	T CAP. 4.7U 10V
C2015-18	4822 126 11257	C CAP. 0.1U 16V
C2019	4822 124 11281	T CAP. 10U 6.3V
C2020,21	4822 122 33736	C CAP. 0.047U 25V
C2022-24	4822 126 11763	C CAP. 0.01U 50V
C2025-27	4822 126 11748	C CAP. 0.1U 16V
C2028	4822 124 11281	T CAP. 10U 6.3V
C2029	4822 126 11785	C CAP. 47P 50V
C2030	4822 126 11257	C CAP. 0.1U 16V
C2032	4822 124 11281	T CAP. 10U 6.3V
C2033	4822 122 33731	C CAP. 0.1U 25V
C2034	4822 126 11257	C CAP. 0.1U 16V
C2035	4822 124 11281	T CAP. 10U 6.3V
C2036	4822 126 10687	C CAP. 1U 16V
C2037	4822 126 11748	C CAP. 0.1U 16V
C2038	4822 126 11763	C CAP. 0.01U 50V
C2039	4822 126 11762	C CAP. 0.01U 50V
C2042	4822 126 11781	C CAP. 3300P 50V
C2044	4822 126 12211	C CAP. 0.022U 25V
C2047	4822 126 11763	C CAP. 0.01U 50V
C2049,50	4822 126 11761	C CAP. 1000P 50V
D2001	4822 130 80527	DIODE MA143
IC2001	4822 209 31414	IC AN3893FHP
IC2002	4822 209 31425	IC UN224
IC2003	4822 209 63522	IC AN3890FBS
IC2004	4822 209 31425	IC UN224
IC2005	4822 209 73819	IC RC4558M
QR2001	4822 130 83012	TR ON2170-LM
QR2002	4822 111 91942	TR UN5210
QR2003	4822 130 62555	TR UN5111
QR2004	4822 130 63049	TR UN5216
QR2005	4822 130 61061	TR UN5215
QR2006	4822 130 62556	TR UN5115
QR2007	4822 130 61061	TR UN5215
R2001	4822 116 81058	RES. 150K
R2002	4822 116 81068	RES. 2.2K
R2003	4822 116 81079	RES. 3.3K
R2004	4822 116 81098	RES. 560K
R2005	4822 116 81069	RES. 22K
R2006	4822 116 83291	RES. 0.33 1/8W
R2007	4822 116 83789	RES. 0.47 1/8W
R2008-10	4822 116 81101	RES. 6.8K
R2011	4822 116 81095	RES. 560
R2012	4822 116 81046	RES. 1K
R2013	4822 116 83291	RES. 0.33 1/8W
R2014	4822 051 10338	RES. 3.3 1/8W
R2015	4822 116 81068	RES. 2.2K
R2016	4822 116 81097	RES. 56K
R2017	4822 051 30754	RES. 750K
R2019,20	4822 116 81089	RES. 470
R2021	4822 051 20101	RES. 100 1/10W
R2022	4822 116 81046	RES. 1K
R2023	4822 116 81058	RES. 150K
R2024	4822 116 81046	RES. 1K
R2025	4822 116 81081	RES. 33K
R2026	4822 116 81092	RES. 47K
R2030,31	4822 116 81069	RES. 22K
R2032	4822 051 20271	RES. 270 1/10W
R2033	4822 116 81046	RES. 1K
R2034	4822 116 81047	RES. 10K
R2037	4822 116 81047	RES. 10K
R2042,43	4822 116 81092	RES. 47K
R2049	4822 116 81047	RES. 10K
R2050	4822 116 81099	RES. 680
R2051	4822 116 81047	RES. 10K
R2052	4822 116 81074	RES. 2.7K
R2053	4822 116 81075	RES. 27K
R2054	4822 116 81081	RES. 33K
R2055,56	4822 116 81046	RES. 1K
R2057	4822 116 81091	RES. 4.7K
R2058	4822 116 81048	RES. 100K

AC Adaptor

SBC 5419/00



SPECIFICATIONS

Power source : AC100 - 240 V, 50 - 60 Hz
(Automatic voltage adjustment)
Power consumption : 25 W
DC output : DC 6 V 11.8 W (Camcorder)
DC 6 V 1.3 A (Battery pack charging)
Weight : Approx. 0.39Kg
Dimensions : 70 (W) x 58 (H) x 178 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

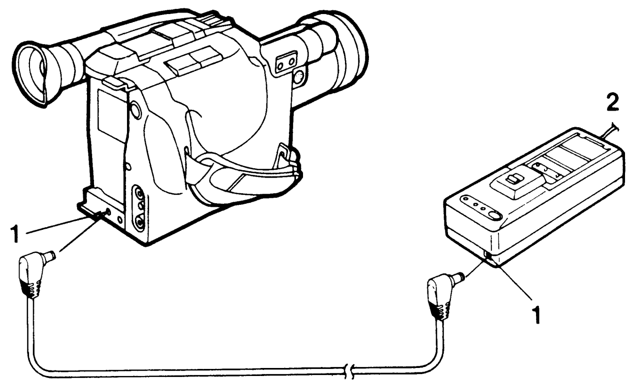
CONTENTS

1. CONTROLS AND COMPONENTS 1
2. DISASSEMBLY PROCEDURES 1
3. AC ADAPTOR BLOCK DIAGRAM 3
4. AC ADAPTOR SCHEMATIC DIAGRAM 6
5. MAIN C.B.A., PRIMARY CONTROL C.B.A., CHARGE CONTROL C.B.A., SWITCH C.B.A. & BATTERY CATCHER C.B.A. 8
6. EXPLODED VIEW 11
    1. CASING & CHASSIS PARTS SECTION 11

MECHANICAL REPLACEMENT PARTS LIST

ELECTRICAL REPLACEMENT PARTS LIST

1. CONTROLS AND COMPONENTS



1 Connect the Power Supply Cable from the DC Output Socket on the AC Adaptor to the DC Input Socket on the Movie Camera.

2 Connect to the Mains.

Note:
When the AC Adaptor is used to supply the camcorder with power, remove the Battery Pack from the AC Adaptor.

2. DISASSEMBLY PROCEDURES

1. DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C. Boards in order to gain access to item(s) to be serviced.
When re-assembling, perform the step(s) in the reverse order.

Note:
When removing the Top Case Unit, work with care so as not to break the locking portions of the Top Case Unit.

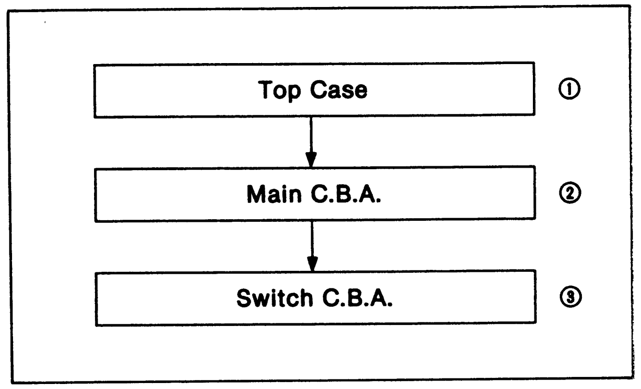


Fig. A1

2. DISASSEMBLY METHOD

Step /Loc No.	Part	REMOVAL		
		Fig. No.	Remove *UNLOCK/RELEASE/ UNPLUG/UNCLAMP	Note
①	Top Case	A2 A4	3 (S-1) 2 (L-1)	BOTTOM SIDE
②	Main C.B.A.	A3	--------------	···
③	Switch C.B.A.	A4	2 (S-2)	···

List of Abbreviations:
3 (S-1) =3 Screws (S-1)
2 (L-1) =2 Locking Tabs (L-1)

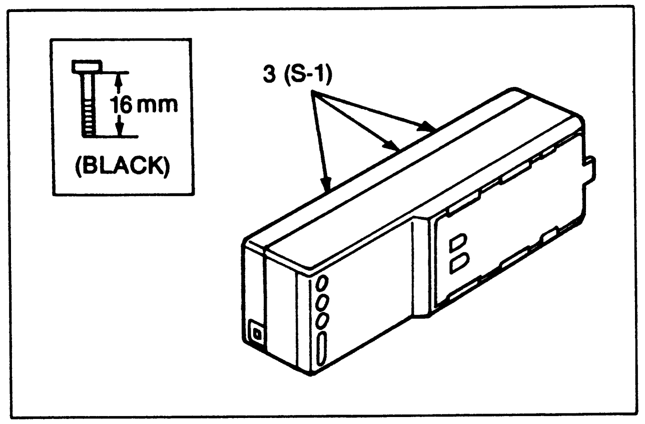


Fig. A2

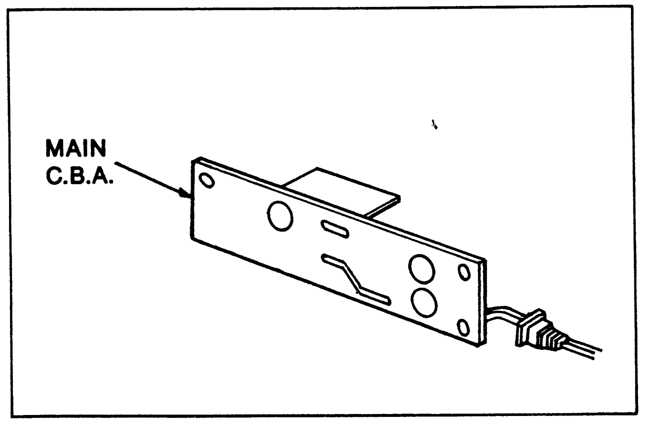


Fig. A3

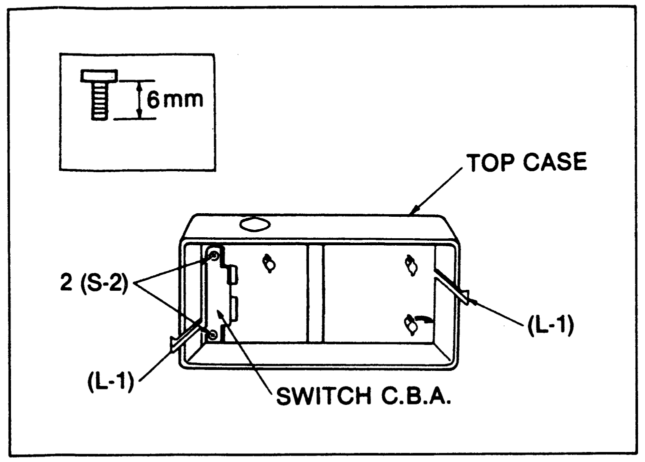


Fig. A4

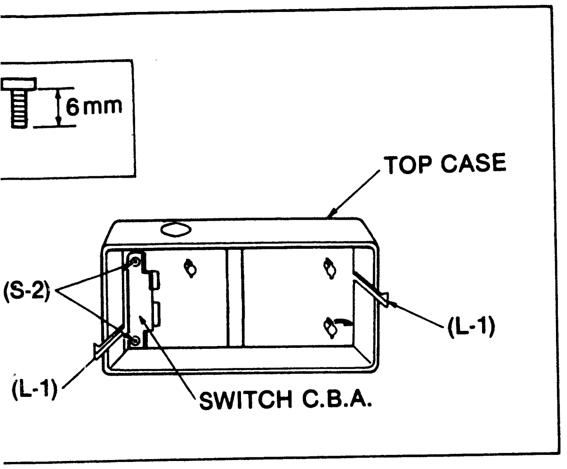
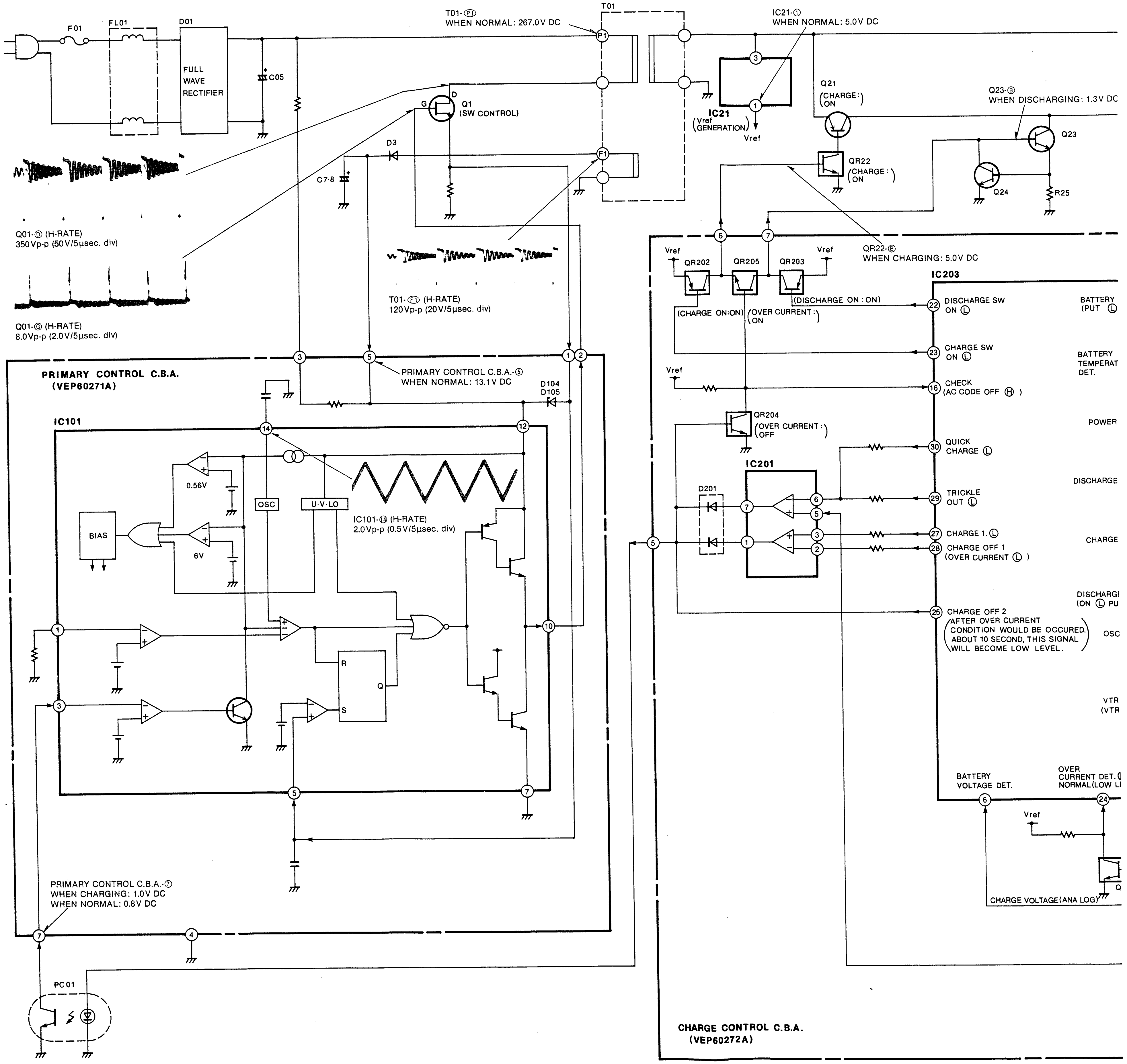
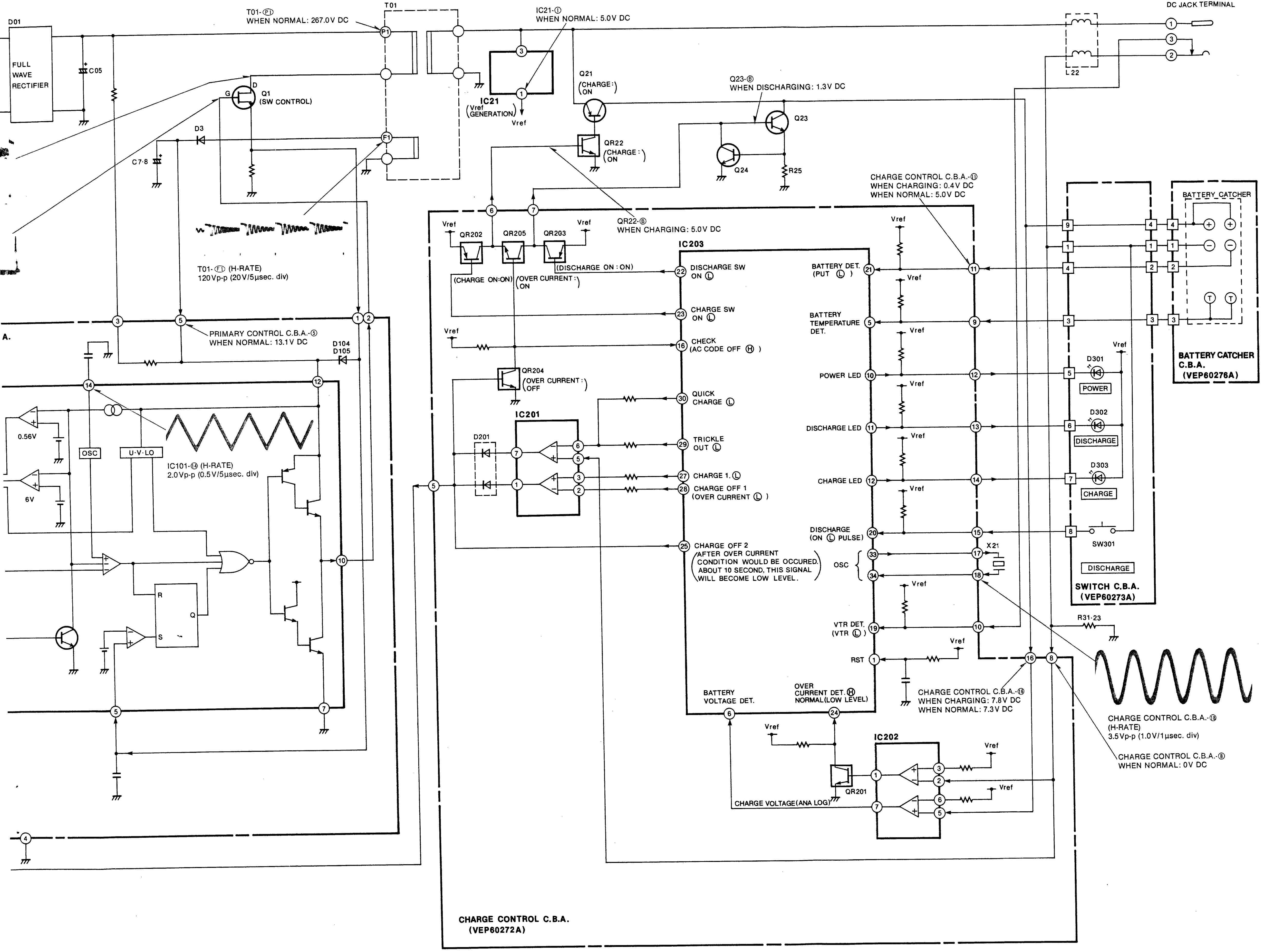

6mm
TOP CASE
(S-2)
(L-1)
(L-1)
SWITCH C.B.A.

Fig. A4

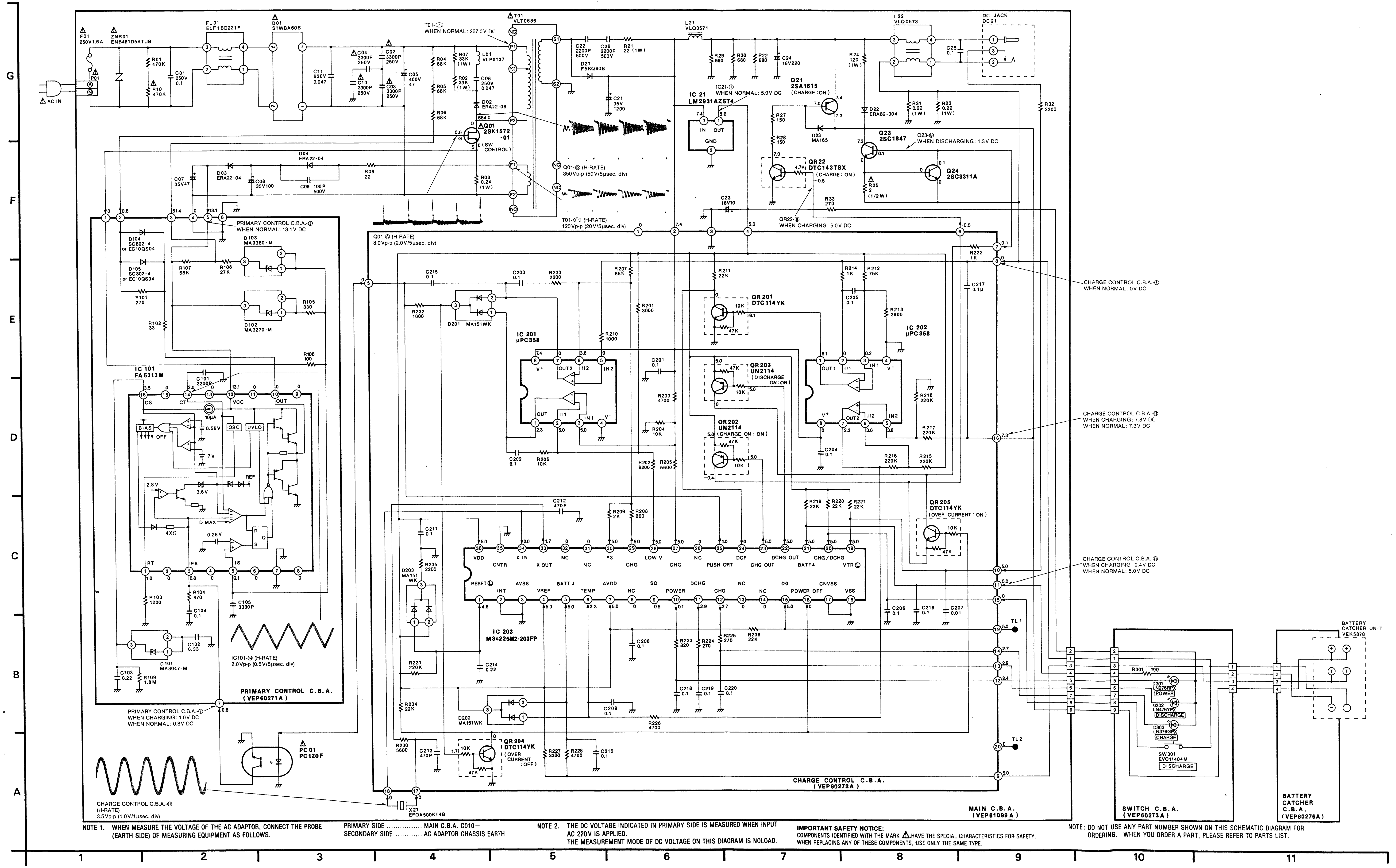
3. AC ADAPTOR BLOCK DIAGRAM


F01
FL01
D01
FULL WAVE RECTIFIER
C05
T01
T01-P1 WHEN NORMAL: 267.0V DC
Q1 (SW CONTROL)
G
D
D3
C7·8
F1
P1
Q01-D (H-RATE) 350Vp-p (50V/5µsec. div)
Q01-G (H-RATE) 8.0Vp-p (2.0V/5µsec. div)
T01-F1 (H-RATE) 120Vp-p (20V/5µsec. div)
PRIMARY CONTROL C.B.A. (VEP60271A)
PRIMARY CONTROL C.B.A.-⑤ WHEN NORMAL: 13.1V DC
D104
D105
IC101
0.56V
6V
BIAS
OSC
U·V·LO
IC101-⑭ (H-RATE) 2.0Vp-p (0.5V/5µsec. div)
R
S
Q
PRIMARY CONTROL C.B.A.-⑦ WHEN CHARGING: 1.0V DC WHEN NORMAL: 0.8V DC
PC01
IC21-① WHEN NORMAL: 5.0V DC
IC21 (Vref GENERATION)
Vref
Q21 (CHARGE : ON)
Q23-B WHEN DISCHARGING: 1.3V DC
Q23
Q24
R25
QR22 (CHARGE : ON)
QR22-B WHEN CHARGING: 5.0V DC
Vref
QR202
QR205
QR203
(DISCHARGE ON : ON)
(CHARGE ON:ON)
(OVER CURRENT : ON)
IC203
DISCHARGE SW ON L
CHARGE SW ON L
CHECK (AC CODE OFF H)
QR204 (OVER CURRENT : OFF)
IC201
D201
QUICK CHARGE L
TRICKLE OUT L
CHARGE 1 L
CHARGE OFF 1 (OVER CURRENT L)
CHARGE OFF 2 (AFTER OVER CURRENT CONDITION WOULD BE OCCURED, ABOUT 10 SECOND, THIS SIGNAL WILL BECOME LOW LEVEL.)
BATTERY (PUT L
BATTERY TEMPERAT DET.
POWER
DISCHARGE
CHARGE
DISCHARGI (ON L PU
OSC
VTR (VTR
BATTERY VOLTAGE DET.
OVER CURRENT DET. NORMAL(LOW LI
CHARGE VOLTAGE(ANA LOG)
CHARGE CONTROL C.B.A. (VEP60272A)

R BLOCK DIAGRAM


D01
FULL WAVE RECTIFIER
C05
Q1 (SW CONTROL)
G
D
D3
C7·8
T01
T01-F1 WHEN NORMAL: 267.0V DC
P1
F1
T01-F1 (H-RATE) 120Vp-p (20V/5μsec. div)
IC21-① WHEN NORMAL: 5.0V DC
IC21 (Vref GENERATION)
Vref
Q21 (CHARGE: ON)
QR22 (CHARGE: ON)
QR22-ⓑ WHEN CHARGING: 5.0V DC
Q23-ⓑ WHEN DISCHARGING: 1.3V DC
Q23
Q24
R25
DC JACK TERMINAL
L22
PRIMARY CONTROL C.B.A.-⑤ WHEN NORMAL: 13.1V DC
D104
D105
0.56V
6V
OSC
U·V·LO
IC101-⑭ (H-RATE) 2.0Vp-p (0.5V/5μsec. div)
R
S
Q
QR202
QR205
QR203
(CHARGE ON:ON)
(OVER CURRENT: ON)
(DISCHARGE ON : ON)
QR204 (OVER CURRENT: OFF)
IC201
D201
IC203
DISCHARGE SW ON Ⓛ
CHARGE SW ON Ⓛ
CHECK (AC CODE OFF Ⓗ)
QUICK CHARGE Ⓛ
TRICKLE OUT Ⓛ
CHARGE 1. Ⓛ
CHARGE OFF 1 (OVER CURRENT Ⓛ)
CHARGE OFF 2 (AFTER OVER CURRENT CONDITION WOULD BE OCCURED. ABOUT 10 SECOND, THIS SIGNAL WILL BECOME LOW LEVEL.)
BATTERY DET. (PUT Ⓛ)
BATTERY TEMPERATURE DET.
POWER LED
DISCHARGE LED
CHARGE LED
DISCHARGE (ON Ⓛ PULSE)
OSC
X21
VTR DET. (VTR Ⓛ)
RST
BATTERY VOLTAGE DET.
OVER CURRENT DET. Ⓗ NORMAL(LOW LEVEL)
IC202
QR201
CHARGE VOLTAGE(ANA LOG)
CHARGE CONTROL C.B.A.-⑪ WHEN CHARGING: 0.4V DC WHEN NORMAL: 5.0V DC
CHARGE CONTROL C.B.A.-⑯ WHEN CHARGING: 7.8V DC WHEN NORMAL: 7.3V DC
CHARGE CONTROL C.B.A.-⑱ (H-RATE) 3.5Vp-p (1.0V/1μsec. div)
CHARGE CONTROL C.B.A.-⑧ WHEN NORMAL: 0V DC
R31·23
BATTERY CATCHER
BATTERY CATCHER C.B.A. (VEP60276A)
D301
POWER
D302
DISCHARGE
D303
CHARGE
SW301
DISCHARGE
SWITCH C.B.A. (VEP60273A)
CHARGE CONTROL C.B.A. (VEP60272A)
A.

4. AC ADAPTOR SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
F01 250V1.6A
ZNR01 ENB461D5ATUB
P01
AC IN
FL01 ELF1BD221F
D01 S1WBA60S
R01 470K
R10 470K
C01 250V 0.1
C11 630V 0.047
C04 3300P 250V
C10 3300P 250V
C02 3300P 250V
C03 3300P 250V
C05 400V 47
R04 68K
R05 68K
R06 68K
R07 33K (1W)
R02 33K (1W)
L01 VLP0137
C06 250V 0.047
D02 ERA22-08
T01 VLT0686
T01-Ⓟ WHEN NORMAL: 267.0V DC
Q01 2SK1572-01
(SW CONTROL)
R03 0.24 (1W)
Q01-Ⓓ (H-RATE) 350Vp-p (50V/5μsec. div)
T01-Ⓕ (H-RATE) 120Vp-p (20V/5μsec. div)
Q01-Ⓖ (H-RATE) 8.0Vp-p (2.0V/5μsec. div)
C22 2200P 500V
C26 2200P 500V
R21 22 (1W)
D21 F5KQ90B
C21 35V 1200
L21 VLQ0571
IC 21 LM2931AZ5T4
IC21-① WHEN NORMAL: 5.0V DC
R29 680
R30 680
R22 680
C24 16V220
Q21 2SA1615 (CHARGE: ON)
R27 150
R28 150
D23 MA165
QR22 DTC143TSX (CHARGE: ON)
QR22-Ⓑ WHEN CHARGING: 5.0V DC
C23 16V10
R33 270
L22 VLQ0573
R24 120 (1W)
D22 ERA82-004
R31 0.22 (1W)
R23 0.22 (1W)
Q23 2SC1847
Q23-Ⓑ WHEN DISCHARGING: 1.3V DC
Q24 2SC3311A
R25 2 (1/2W)
DC JACK DC21
C25 0.1
R32 3300
D04 ERA22-04
D03 ERA22-04
C07 35V47
C08 35V100
C09 100P 500V
R09 22
PRIMARY CONTROL C.B.A.-⑥ WHEN NORMAL: 13.1V DC
D104 SC802-4 or EC10QS04
D105 SC802-4 or EC10QS04
R101 270
R102 33
R107 68K
R108 27K
D103 MA3360-M
D102 MA3270-M
R105 330
R106 100
IC 101 FA5313M
C101 2200P
BIAS
OSC
UVLO
REF
D MAX
R103 1200
R104 470
C104 0.1
C105 3300P
C102 0.33
D101 MA3047-M
C103 0.22
R109 1.8M
IC101-⑭ (H-RATE) 2.0Vp-p (0.5V/5μsec. div)
PRIMARY CONTROL C.B.A. (VEP60271A)
PRIMARY CONTROL C.B.A.-⑦ WHEN CHARGING: 1.0V DC WHEN NORMAL: 0.8V DC
PC01 PC120F
CHARGE CONTROL C.B.A.-⑱ (H-RATE) 3.5Vp-p (1.0V/1μsec. div)
X21 EFOA500KT4B
C215 0.1
C203 0.1
R233 2200
R232 1000
D201 MA151WK
IC 201 μPC358
R207 68K
R210 1000
R201 3000
C201 0.1
R203 4700
R204 10K
C202 0.1
R206 10K
R202 8200
R205 5600
R211 22K
QR201 DTC114YK
QR203 UN2114 (DISCHARGE ON: ON)
QR202 UN2114 (CHARGE ON: ON)
R214 1K
R212 75K
C205 0.1
R213 3900
IC 202 μPC358
R218 220K
R217 220K
C204 0.1
R216 220K
R215 220K
R222 1K
C217 0.1μ
CHARGE CONTROL C.B.A.-⑧ WHEN NORMAL: 0V DC
CHARGE CONTROL C.B.A.-⑯ WHEN CHARGING: 7.8V DC WHEN NORMAL: 7.3V DC
CHARGE CONTROL C.B.A.-⑪ WHEN CHARGING: 0.4V DC WHEN NORMAL: 5.0V DC
C212 470P
R209 2K
R208 200
R219 22K
R220 22K
R221 22K
QR205 DTC114YK (OVER CURRENT: ON)
C211 0.1
R235 2200
D203 MA151WK
IC 203 M34225M2-203FP
VDD CNTR X IN X OUT NC NC F3 CHG LOW V CHG NC PUSH CRT DCP CHG OUT DCHG OUT BATT4 CHG/DCHG VTR
RESET INT AVSS VREF BATT J TEMP AVDD NC SO POWER DCHG CHG NC D0 POWER OFF CNVSS VSS
C206 0.1
C216 0.1
C207 0.01
C208 0.1
R223 820
R224 270
R225 270
R236 22K
C214 0.22
R231 220K
C218 0.1
C219 0.1
C220 0.1
R234 22K
D202 MA151WK
C209 0.1
R226 4700
R230 5600
C213 470P
QR204 DTC114YK (OVER CURRENT: OFF)
R227 3300
R228 4700
C210 0.1
TL1
TL2
CHARGE CONTROL C.B.A. (VEP60272A)
MAIN C.B.A. (VEP61099A)
R301 100
D301 LN276RPX POWER
D302 LN476YPX DISCHARGE
D303 LN376GPX CHARGE
SW301 EVQ11404M DISCHARGE
SWITCH C.B.A. (VEP60273A)
BATTERY CATCHER UNIT VEK5878
BATTERY CATCHER C.B.A. (VEP60276A)

NOTE 1. WHEN MEASURE THE VOLTAGE OF THE AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.

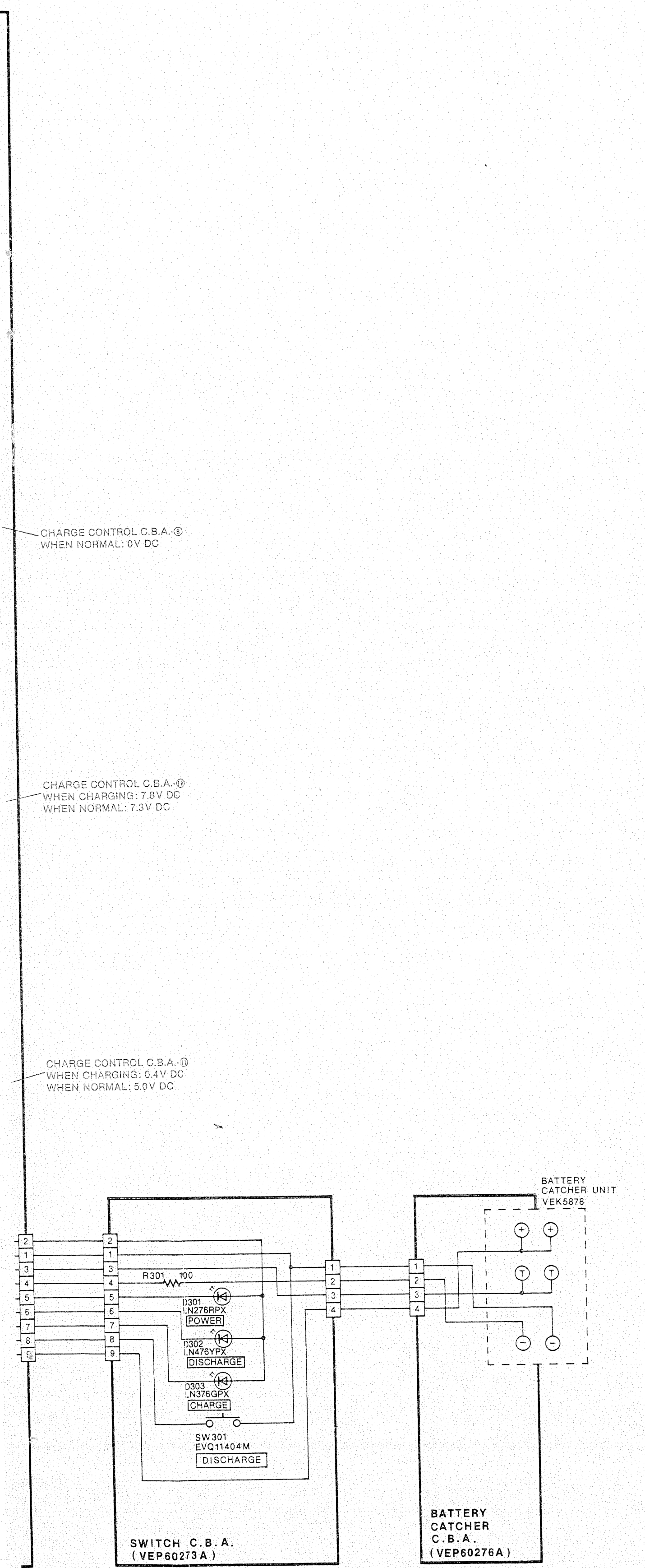
PRIMARY SIDE .... MAIN C.B.A. C010—
SECONDARY SIDE .... AC ADAPTOR CHASSIS EARTH

NOTE 2. THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 220V IS APPLIED.
THE MEASUREMENT MODE OF DC VOLTAGE ON THIS DIAGRAM IS NOLOAD.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

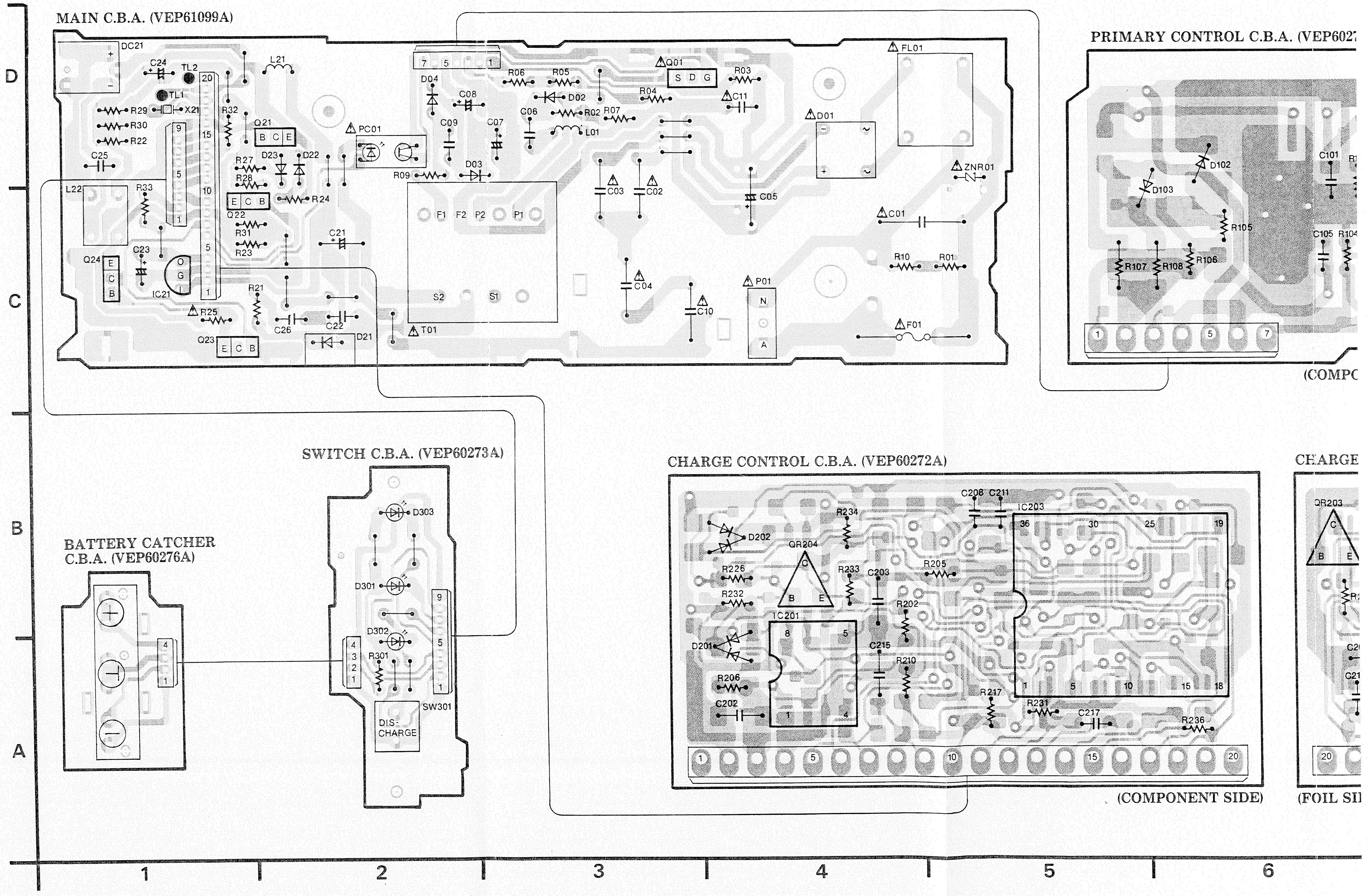
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

5. MAIN C.B.A. (VEP61099A), PRIMARY CONTROL C.B.A. (VEP60271A), CHARGE CONTROL C.B.A. (VEP60272A), SWITCH C.B.A. (VEP60273A) & BATTERY CATCHER C.B.A. (VEP60276A)

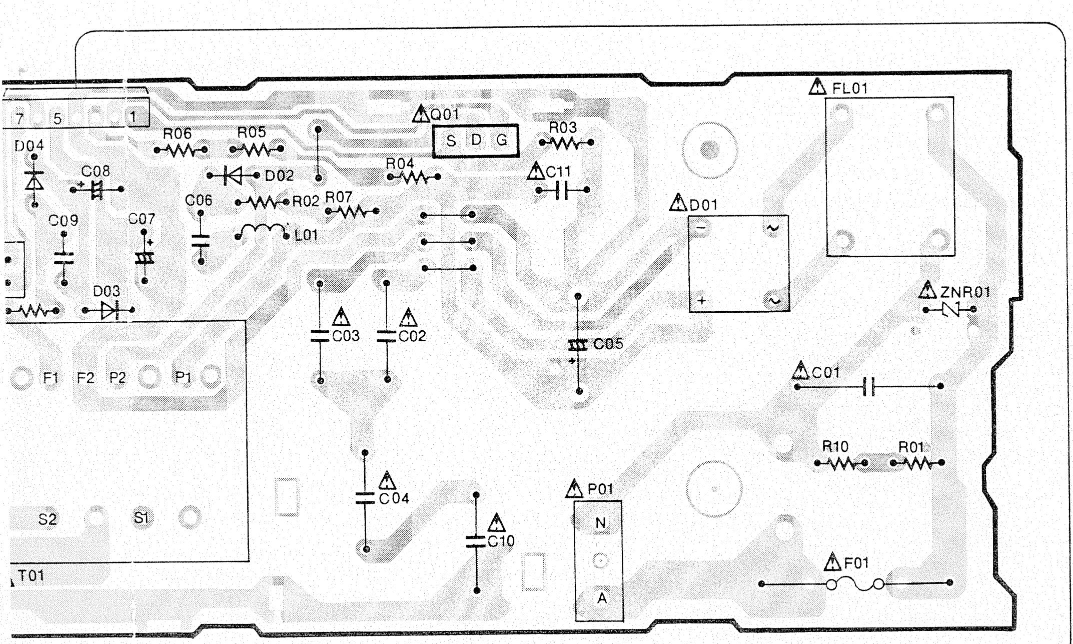

CHARGE CONTROL C.B.A.-⑧
WHEN NORMAL: 0V DC
CHARGE CONTROL C.B.A.-⑯
WHEN CHARGING: 7.8V DC
WHEN NORMAL: 7.3V DC
CHARGE CONTROL C.B.A.-⑪
WHEN CHARGING: 0.4V DC
WHEN NORMAL: 5.0V DC
R301 100
D301
LN276RPX
POWER
D302
LN476YPX
DISCHARGE
D303
LN376GPX
CHARGE
SW301
EVQ11404M
DISCHARGE
BATTERY
CATCHER UNIT
VEK5878
SWITCH C.B.A.
(VEP60273A)
BATTERY
CATCHER
C.B.A.
(VEP60276A)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

10
11

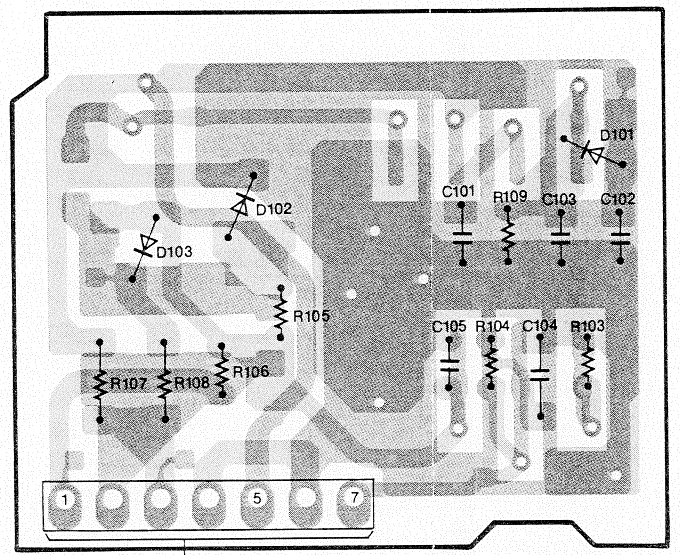

MAIN C.B.A. (VEP61099A)
PRIMARY CONTROL C.B.A. (VEP602
(COMPO
SWITCH C.B.A. (VEP60273A)
BATTERY CATCHER
C.B.A. (VEP60276A)
CHARGE CONTROL C.B.A. (VEP60272A)
(COMPONENT SIDE)
CHARGE
(FOIL SI
D
C
B
A
1
2
3
4
5
6
DC21
C24
TL2
TL1
L21
R29
X21
R30
R22
R32
Q21
C25
R27
R28
D23
D22
Q22
R24
R31
R23
R33
L22
C23
Q24
IC21
C21
R21
R25
C26
C22
D21
Q23
PC01
D04
C08
C09
C07
R09
D03
T01
R06
R05
D02
C06
R02
R07
L01
R04
Q01
R03
C11
C03
C02
C05
C04
C10
P01
FL01
D01
ZNR01
C01
R10
R01
F01
D102
D103
C101
R105
C105
R104
R107
R108
R106
D303
D301
D302
R301
SW301
DIS-
CHARGE
D202
QR204
C208
C211
IC203
R234
R226
R232
R233
C203
R205
R202
IC201
D201
C215
R210
R206
C202
R217
R231
C217
R236
QR203

Y CONTROL C.B.A. (VEP60271A), CHARGE CONTROL C.B.A. (VEP60272A),
TERY CATCHER C.B.A. (VEP60276A)



7
5
1
D04
R06
R05
Q01
S D G
R03
C08
D02
R04
C11
C06
R02
R07
C09
C07
L01
D01
FL01
ZNR01
D03
C03
C02
C05
F1
F2
P2
P1
C01
R10
R01
C04
P01
N
A
C10
S2
S1
F01
T01

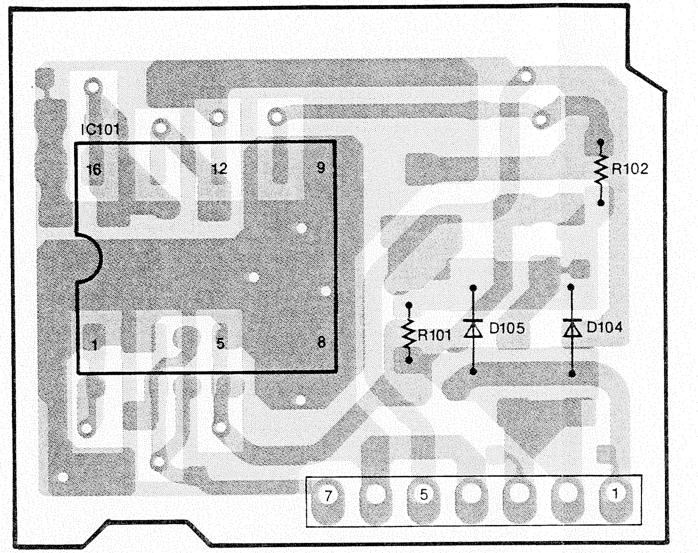
PRIMARY CONTROL C.B.A. (VEP60271A)



D101
D102
D103
C101
R109
C103
C102
R105
C105
R104
C104
R103
R107
R108
R106
1
5
7

(COMPONENT SIDE)

PRIMARY CONTROL C.B.A. (VEP60271A)



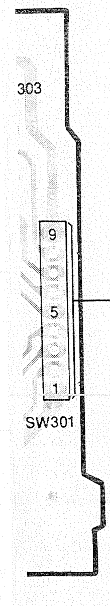
IC101
16
12
9
1
5
8
R102
R101
D105
D104
7
5
1

(FOIL SIDE)

MAIN C.B.A., PRIMARY CONTROL C.B.A. & CHARGE CONTROL C.B.A.	
Transistor	
Q1	D-3
Q21	D-2
Q22	C-2
Q23	C-1
Q24	C-1
Transistor & Resistor	
QR201	B-8
QR202	B-6
QR203	B-6
QR204	B-4
QR205	B-7
Integrated Circuit	
IC21	C-1
IC101	D-7
IC201	A-4
IC202	B-8
IC203	B-5
Test Point	
TL1	D-1
TL2	D-1
Connector	
P1	C-4

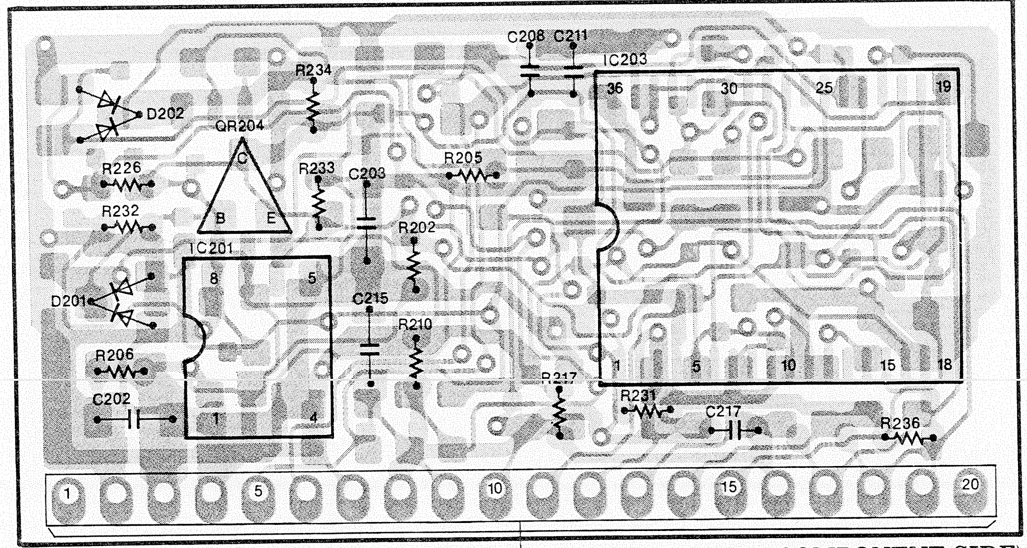
ADDRESS INFORMATION

(VEP60273A)



303
9
5
1
SW301

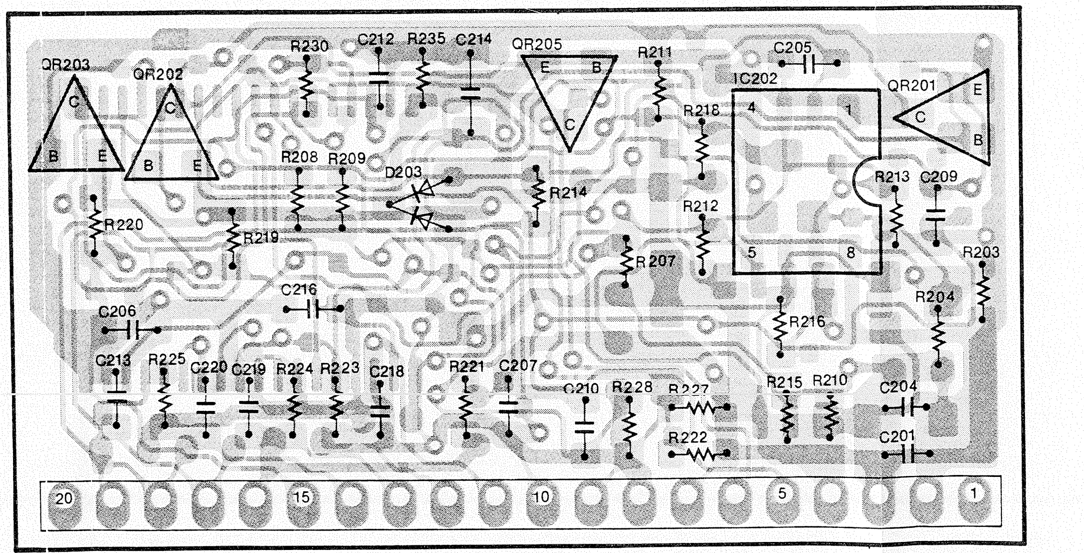
CHARGE CONTROL C.B.A. (VEP60272A)



C208
C211
IC203
36
30
25
19
R234
D202
QR204
C
B
E
R226
R233
C203
R205
R232
R202
IC201
8
5
1
4
D201
C215
R210
R206
C202
R217
R231
C217
R236
1
5
10
15
18
1
5
10
15
20

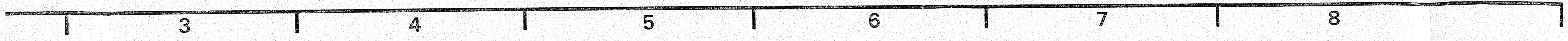
(COMPONENT SIDE)

CHARGE CONTROL C.B.A. (VEP60272A)



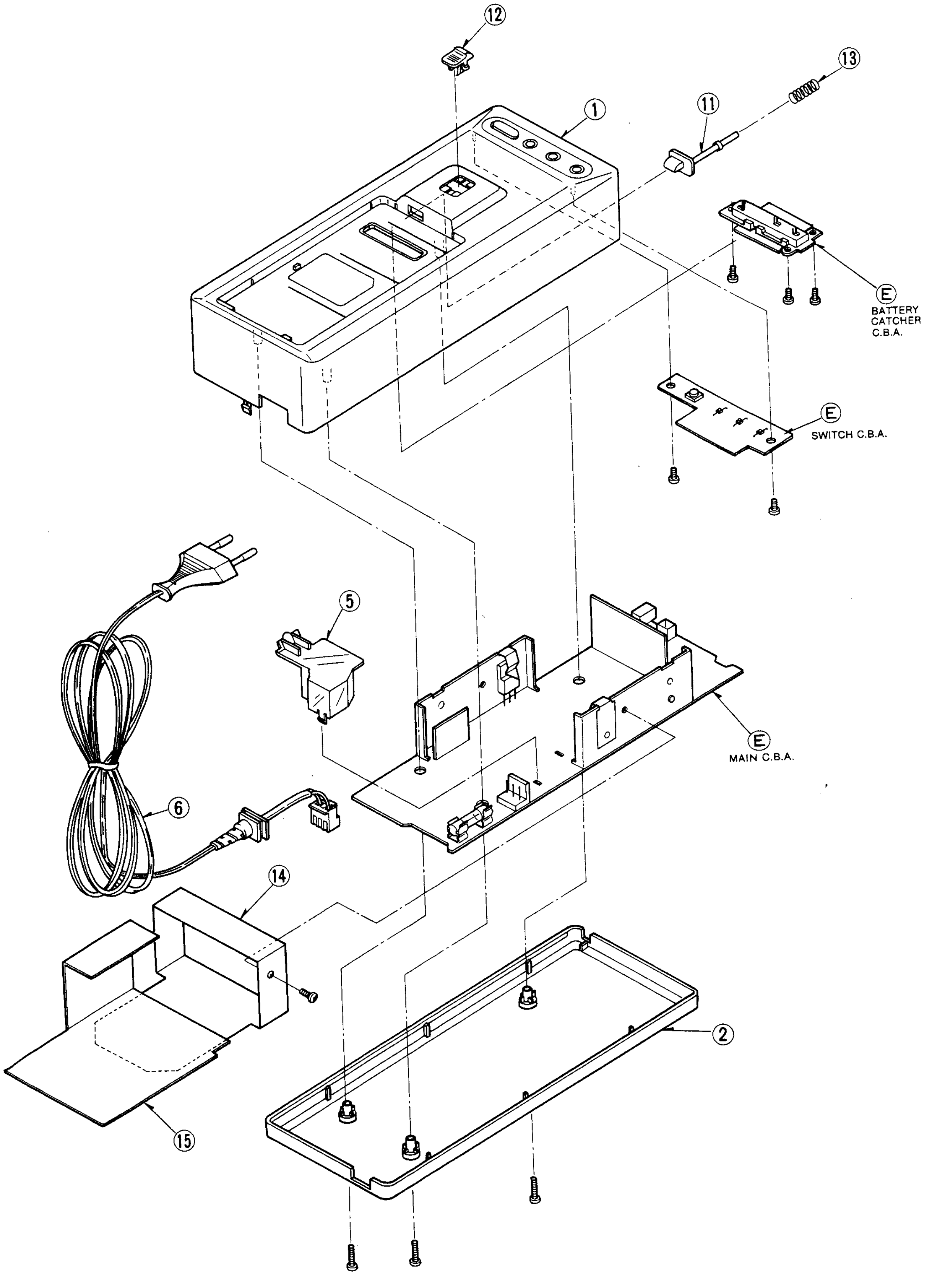
QR203
QR202
R230
C212
R235
C214
QR205
E
B
C
R211
C205
IC202
QR201
4
1
5
8
R218
R208
R209
D203
R214
R220
R219
R213
C209
R212
R207
R203
C216
R204
R216
C206
C213
R225
C220
C219
R224
R223
C218
R221
C207
C210
R228
R227
R215
R210
C204
R222
C201
20
15
10
5
1

(FOIL SIDE)



6. EXPLODED VIEW

❶ CASING & CHASSIS PARTS SECTION


⑫
⑬
⑪
①
Ⓔ
BATTERY CATCHER C.B.A.
Ⓔ
SWITCH C.B.A.
⑤
Ⓔ
MAIN C.B.A.
⑥
⑭
②
⑮

PARTS LIST

SAFETY PRECATION

Partsidentified by ∗symbol are critical for safety. Replace with specified part numbers.

Notes

Unless otherwise specified,
All resistors are in Ohms and 1/16W.
All capacitors are in Farads.

Pos.	Parts code	Description
CASING & CHASSIS PARTS SECTION		
1	4822 432 60701	TOP CASE UNIT
2	4822 432 60699	BOTTOM CASE
6	4822 321 10766	AC CORD
11	4822 403 70267	LOCK PIECE
12	4822 411 61755	BATTERY EJECT BUTTON
13	4822 492 33238	EJECT SPRING
MAIN C.B.A.		
∗C01	4822 121 70003	P CAP. 0.1U 250V
∗C02-04	4822 126 11799	CAP.
C05	4822 121 43254	P CAP. 47P 400V
C06	4822 121 70129	P CAP. 0.047U 250V
C07	4822 124 23905	E CAP. 47U 35V
C08	4822 124 22933	E CAP. 100U 35V
C09	4822 126 10008	C CAP. 100P 500V
∗C10	4822 126 11799	CAP.
C11	4822 121 70131	P CAP. 0.047U 630V
C21	4822 124 80159	E CAP. 1200P 35V
C22	4822 126 12175	C CAP. 2200P 500V
C23	4822 124 21533	E CAP. 10U 16V
C24	4822 124 80146	E CAP. 220U 16V
C25	4822 124 23912	S CAP. 0.1U 50V
C26	4822 126 12175	C CAP. 2200P 500V
C101	5322 122 33816	C CAP. 2200P 50V
C102	4822 126 12176	C CAP. 0.33U 16V
C103	4822 126 11732	C CAP. 0.22U 16V
C104	4822 122 33496	C CAP. 0.1U 50V
C105	4822 122 33891	C CAP. 3300P 50V
C201	4822 122 33731	C CAP. 0.1U 25V
C202,03	4822 122 33496	C CAP. 0.1U 50V
C204-06	4822 122 33731	C CAP. 0.1U 25V
C207	4822 126 10694	C CAP. 0.01U 50V
C208-11	4822 122 33731	C CAP. 0.1U 25V
C212,13	5322 122 32268	C CAP. 470P 50V
C214	4822 126 11732	C CAP. 0.22U 16V
C215	4822 122 33496	C CAP. 0.1U 50V
C216-20	4822 122 33731	C CAP. 0.1U 25V
∗D01	4822 130 83027	S1WBA60S
D02	4822 130 80701	DIODE ERA22-08
D03,04	4822 130 81256	DIODE ERA22-04
D21	4822 130 83015	DIODE F5KQ90B
D22	4822 130 80702	DIODE ERA82-004
D23	4822 130 82733	DIODE MA165VT
D101	4822 130 80731	DIODE MA3047M
D102	4822 130 83019	DIODE MA3270-M
D103	4822 130 83021	DIODE MA3360-M
D104,05	4822 130 83023	DIODE SC8024TE12R
D201-03	4822 130 31742	DIODE MA151WK
DC21	4822 267 31484	DC JACK
∗F01	4822 252 20188	FUSE
∗FL01	4822 157 63932	COIL
IC21	4822 209 81951	IC LM2931AZ5T4
IC101	4822 209 31332	IC FA5313M
IC201,02	4822 209 83195	IC UPC358G2
IC203	4822 209 31333	IC M34225-203FP
L01	4822 157 63933	COIL
L21	4822 157 63934	COIL
L22	4822 157 63935	COIL
∗PC01	4822 130 83022	DIODE PC120F
∗Q01	4822 130 63039	TR 2SK1572
Q21	4822 130 62821	TR 2SA1615
Q23	4822 130 63038	TR 2SC1847
Q24	4822 130 60497	TR 2SC3311A
QR22	4822 130 63037	TR DTC143TSX
QR201	4822 130 60546	TR DTC114YK
QR202,03	4822 130 42731	TR UN2114
QR204	4822 130 61488	TR UN2214
R01	4822 116 52285	RES. 470K 1/4W
R02	4822 116 83732	RES. 33K 1W
R03	4822 116 83746	RES. 0.24 1W
R04-06	4822 116 52297	RES. 68K 1/4W
R07	4822 116 83732	RES. 33K 1W
R09	4822 116 52186	RES. 22 1/4W
R10	4822 116 52285	RES. 470K 1/4W
R21	4822 116 83731	RES. 22 1W
R22	4822 116 83749	RES. 680 1/4W
R23	4822 116 83745	RES. 0.22 1W
R24	4822 116 60555	RES. 120 1W
∗R25	4822 116 83744	RES. 2.0 1/2W
R27,28	4822 116 83748	RES. 150 1/4W
R29,30	4822 116 83749	RES. 680 1/4W
R31	4822 116 83745	RES. 0.22 1W
R32	4822 116 52269	RES. 3.3K 1/4W
R33	4822 116 52217	RES. 270 1/4W
R101	4822 051 20271	RES. 270 1/10W
R102	4822 116 83287	RES. 33 1/10W
R103	4822 116 83734	RES. 1.2K 1/10W
R104	4822 051 20471	RES. 470 1/10W
R105	4822 051 20331	RES. 330 1/10W
R106	4822 051 20101	RES. 100 1/10W
R107	4822 116 83743	RES. 68K 1/8W
R108	4822 116 83742	RES. 27K 1/8W
R109	4822 116 83289	RES. 1.8M 1/10W
R201	4822 116 83285	RES. 3K 1/10W
R202	4822 116 81559	RES. 8.2K 1/10W
R203	4822 116 83737	RES. 4.7K 1/10W
R204	4822 116 83733	RES. 10K 1/10W
R205	4822 116 83738	RES. 5.6K 1/10W
R206	4822 051 20103	RES. 10K 1/10W
R207	4822 116 83741	RES. 68K 1/10W
R208	4822 116 83735	RES. 200 1/10W
R209	4822 116 83736	RES. 2K 1/10W

Pos.	Parts code	Description
R210	4822 051 20102	RES. 1K 1/10W
R211	4822 116 81562	RES. 22K 1/10W
R212	4822 116 83739	RES. 56K 1/10W
R213	4822 116 83284	RES. 2.7K 1/10W
R214	4822 051 20102	RES. 1K 1/10W
R215-18	4822 116 83283	RES. 220K 1/10W
R219-21	4822 116 81562	RES. 22K 1/10W
R222	4822 051 20102	RES. 1K 1/10W
R223	4822 051 20821	RES. 820 1/10W
R224,25	4822 051 20271	RES. 270 1/10W
R226	4822 116 81565	RES. 4.7K 1/10W
R227	4822 116 83285	RES. 3K 1/10W
R228	4822 116 81565	RES. 4.7K 1/10W
R230	4822 116 81567	RES. 5.6K 1/10W
R231	4822 116 81563	RES. 220K 1/10W
R232	4822 051 20102	RES. 1K 1/10W
R233	4822 051 20222	RES. 2.2K 1/10W
R234	4822 116 81562	RES. 22K 1/10W
R235	4822 051 20222	RES. 2.2K 1/10W
R236	4822 116 81562	RES. 22K 1/10W
∗T01	4822 146 21667	TRANSFORMER
X21	4822 242 81214	CRYSTAL OSCILLATOR
∗ZNR01	4822 130 83014	SURGE ABSORBER
SWITCH C.B.A.		
D301	4822 130 83017	DIODE LN376GPX
D302	4822 130 83018	DIODE LN476YPX
D303	4822 130 83016	DIODE LN276RPX
R301	4822 050 11002	RES. 1K 1/4W
SW301	4822 271 30697	SWITCH
	4822 219 82596	BATTERY CATCH